

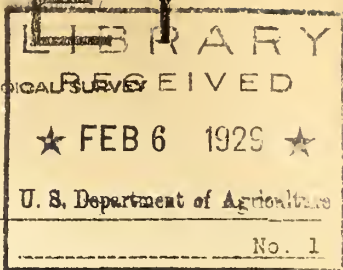
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THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY
UNITED STATES DEPARTMENT OF AGRICULTURE



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GREETINGS FROM THE SECRETARY

January 3, 1929.

Dear Mr. Redington:

We cannot accurately sum up the work of the Department of Agriculture each year; much of it requires years to complete and the good results will continue far into the future. But I do know you have accomplished much and you should feel a great satisfaction in what you have done for the country's industry and for a large part of its people.

Along with my good wishes you have my congratulations.

Faithfully yours,

W M Jardine

GENERAL NOTES

Honored by Foresters.--Mr. Redington was elected president of the Society of American Foresters at the annual meeting of the society held in New York City on December 28 and 29, 1928, in conjunction with the American Association for the Advancement of Science. The society, with a membership of about 1,300 throughout the United States and Canada, came into being in 1900 and was recently incorporated in the District of Columbia, and has for its object the advancement of the science, practice, and standards of forestry in America. Its official organ is the Journal of Forestry.

Chief Back from Week in New England.--Mr. Redington returned to Washington on January 20 after a week's trip in New England. In Boston, on the 15th, he addressed the joint meeting of the New England Bird Banding Association and the Federation of Bird Clubs of New England on the bird-banding work of the Bureau. On the evening of the 16th, at Hanover, N. H., he gave a talk on the work of the Survey to the Dartmouth College Scientific Association. He then returned to Boston and attended the New England Sportsmen's Show.

The Agricultural Appropriation Bill has passed the House of Representatives and is now before the Senate for consideration, having been reported out of committee on January 16. All items of increase approved by the Bureau of the Budget are included, and are as follows: \$5,538 for the more adequate protection of bird reservations; \$7,957 for the study of the relation of wild animals to forest growth under the provisions of the McSweeney-McNary Act; \$1,500 for clerical assistance in the waterfowl-census work; \$5,467 for a survey of the numbers, breeding conditions, and present status of the wood cock; \$150,000 additional for land acquisition in connection with the Upper Mississippi River Wild Life Refuge; and \$75,000 additional for the Bear River Migratory-Bird Refuge. In addition to the budget increases there was added in the House \$1,273 for the appropriation for the Economic Investigations Division, being a Budget Bureau cut over current appropriations, and in the Senate \$8,000 more was added to the appropriations of this division for predatory-animal work in Alaska. The bill, as it reached the Senate, provides a total appropriation of \$1,437,653 for the Biological Survey.

Budget Approves Migratory-Bird Refuge Bill.--The Department report on the Norbeck bill (S. 1271) to establish inviolate sanctuaries for migratory birds was sent to the chairman of the Committee on Agriculture in the House of Representatives on January 11 with the approval of the Budget Bureau. The bill as it passed the Senate on April 13, 1928, had been amended to eliminate the public-shooting-grounds feature, and also the provision requiring \$1 Federal licenses to hunt migratory game birds, as a means of raising funds to carry out the refuge program. In the bill that passed the Senate an annual appropriation of \$1,000,000 for the acquisition of refuge areas is authorized. In commenting upon the report of the Department, the Budget Bureau stated that if the bill were amended along the lines suggested by the Department it would not be in conflict with the financial program of the President. The Department also suggested that inasmuch as actual purchases under the bill could not be commenced for a period of two or three years, the funds necessary from the Federal Treasury to inaugurate the system of proposed refuges would not exceed \$75,000 for the first year, \$200,000 for the second year, and \$600,000 for the third year. The bill requires the States first to enact legislation consenting to the acquisition of areas by the Federal Government for refuge purposes, which most of the States would not have an opportunity to do until 1931.

Several times previously the bill had received the approval of the Budget Bureau when it carried its own financial scheme through the sale of Federal hunting licenses. The proposal to acquire Federal refuge areas under direct appropriations by Congress had not heretofore been considered by the Budget. In order for the measure to have any opportunity of consideration in the House at this short session of Congress it was necessary first that it have the approval of the Budget Bureau. On January 24, the bill, which will be known as the Norbeck-Andresen Migratory-Bird Conservation Bill (S. 1271--H. R. 16525), was favorably reported to the House by the Committee on Agriculture. Thus the bill at this time is in the most favorable position it has occupied since it was voted on in the 68th Congress, February 21, 1925.

Attend A. A. A. S. Meeting.---The annual meeting of the American Association for the Advancement of Science held at New York City December 27, 1928, to January 2, 1929, was attended by Mr. Redington, Dr. J. E. Shillinger, and Dr. W. B. Bell as official representatives of the Survey. Vernon Bailey, who at the time of the meeting was assisting a boy-scout camp in New Jersey in starting a local museum, was also able to attend some of the sessions. All report a most interesting series of papers and addresses.

Radio Talks for February.---Biological Survey talks for the month of February in the Department's radio program are scheduled as follows:

Fur Farming.....	February 7
Game-bird Propagation	February 8
Waterfowl Censuses, Their Purposes, Methods, and Results, by Dr. W. B. Bell in person, 1:15 p. m., Eastern Standard Time.....	February 8
Woodchucks.....	February 26
Bird Houses.....	February 28

SURVEY Committee Named.---The Chief has designated the following members of the Survey to serve as the Committee on THE SURVEY for the year 1929: Dr. W. B. Bell, Chairman; Edward A. Preble, Biological Investigations; W. E. Crouch, Economic Investigations; E. R. Kalmbach, Food Habits Research; Frank G. Ashbrook, Fur Resources; W. Roy Dillon, Ernest P. Walker, and Dr. T. S. Palmer, Game and Bird Conservation; Mrs. A. B. Morrison, Administrative Offices; Lisle Morrison, Exhibits and Photographs; Wm. H. Cheesman, Editor; and Paul H. Oehser, Assistant Editor. News items or suggestions for the improvement of our house organ are always welcome and should be submitted through the representative of the appropriate division or office.

Survey Has Exhibit at Sportsmen's Show.---Lisle Morrison, in charge of Bureau exhibits, conducted an exhibit of the Survey's work at the New England Sportsmen's Show, at Boston, Mass., January 16 to 26. The display consisted of an information booth, where literature bearing on the entire exhibit was passed out to interested visitors; a booth containing hutches of live rabbits and showing how rabbit skins may be furnished in various colors; a beaver house and pond (tank) with two live animals and a showing of possible tannings of a large beaver skin, and the method of trapping beavers alive; and a conservation exhibit with paintings of wild life and hunting scenes, intended to bring out the recreational and conservational phases of the work. Mounted specimens of birds also figured in this last part of the display. Dr. K. B. Hanson and Dr. J. E. Shillinger, of the Division of Fur Resources, assisted at the booths during part of the show. Mr. Morrison reports that the Survey's exhibit attracted large crowds, with much interest manifested in the lines of work portrayed and a large demand for publications on the subjects exhibited.

Congratulations are being extended to Mr. and Mrs. Thos. E. Jacoby, both formerly of the Administrative Office, on their recent marriage. Mr. Jacoby is secretary to the Chief, and Mrs. Jacoby, formerly Miss Elizabeth Olmsted, is now in the Division of Economic Investigations.

Appointed Editorial Clerk.--Miss Ethel M. Johnson, formerly stenographer in the Division of Economic Investigations, has been assigned to duties in the Editorial Office, effective January 16. Miss Alice W. Hall, who since July 1 has been assisting in the Editorial Office, has been transferred to the position of personnel clerk in the Office of the Assistant in Operations, formerly held by Mrs. Jacoby.

Visitors.--Among the recent visitors to various offices of the Bureau were J. Kenneth Douth, of the Carnegie Museum, Pittsburgh, Pa.; Dr. F. Gregory Hall, of Duke University, Durham, N. C.; Prof. James S. Hine, of Ohio State University, Columbus, Ohio; Profs. Paul B. Lawson and Raymond H. Beamer, of the University of Kansas, Lawrence, Kans.; Dr. R. G. Green, of the University of Minnesota, Minneapolis, Minn., who is cooperating with the Bureau in the fur-animal disease project; and David C. Mills, of the National Association of the Fur Industry, New York City.

Take Christmas Bird Censuses.--Again this season, several members of the Survey took Christmas bird censuses in the vicinity of Washington, D. C., and various other parts of the country. Edward A. Preble and W. L. McAtee, in company with Dr. Alexander Wetmore, of the Smithsonian Institution, on December 24, in the vicinity of Dogue Creek, Va., counted 6,598 individuals of 47 species, including more than 5,000 canvasbacks and other ducks. E. R. Kalmbach, C. C. Sperry, F. M. Uhler, and James Silver, on December 22, in the Port Tobacco region, Charles County, Md., counted 7,138 individuals of 57 species, including a flock of about 6,000 European starlings. H. L. Stoddard and Charles O. Handley on December 24, in Leon County, Fla., saw 6,424 individuals of 86 species. This number also included large numbers of ducks, chiefly ring-necks, and coots. Ira N. Gabrielson made a similar count near Portland, Oreg. Detailed results of these and other counts made at Christmas time are published each year in the January-February number of Bird-Lore.

Address Biological Society.--On the evening of January 26, Ernest P. Walker and Olaus J. Murie addressed the Biological Society of Washington on, respectively, "Some Graphic Methods of Showing Problems in Wild Life Administration" and "The Alaskan Caribou." Their talks were illustrated with lantern slides.

Chief's Son "Gets" Byrd on Radio.--Washington newspapers on January 25 carried pictures of Mr. Redington's 15-year-old son, Edward, and accounts of his having established communication on the day before with the Byrd Antarctic Expedition base ship with a home-made radio outfit. Edward operates an amateur radio station, W3KR, an official station of the American Radio Relay League, at his home in Falls Church, Va. Among other calls listed in his radio log book are stations in Germany, Belgium, Australia, Portugal, Holland, Spain, and Newfoundland.

Official Publications.--The following official publication of the Bureau was issued during the month:

"Rabbit Manure as a Fertilizer," prepared by Dr. C. C. Fletcher, of the Bureau of Chemistry and Soils. Leaflet Bi-994. 4 p. Received January 16.

Outside Publications.--The following articles by members of the Bureau appearing in outside publications have been reported during the month:

- Ashbrook, Frank G. Recommendations to Beginners in Fur Farming. The Northern Fur Trade, vol. 3, no. 9, p. 5-9. October-November, 1928.
- Production and Conservation of Fur Animals. The Game Breeder, vol. 22, no. 11, p. 337-343. November, 1928.
- Ashbrook, Frank G., and Karl B. Hanson. Progress Report of Marten Breeding Experiments. The Northern Fur Trade, vol. 3, no. 9, p. 14-16. October-November, 1928.
- Bell, W. B. Alaska's Reindeer-Caribou. American Forests and Forest Life, vol. 35, no. 1, p. 16-20, illus. January, 1929.
- Carhart, A. H., and Stanley P. Young. Senor Yip Yap [Coyote]. Sunset Magazine, vol. 61, no. 6, p. 28-30, illus. December, 1928.
- Cox, William T. Wild Life as a Product of the Forest Estate. American Forests and Forest Life, vol. 34, no. 419, p. 657-658, illus. November, 1928.
- Earnshaw, Frank L. Game and Fish Law Department--Game Legislation in 1929. Field and Stream, vol. 33, no. 9, p. 80-81. January, 1929.
- Gabrielson, Ira N. Jumping Jack's Jaunts and Journeys. Outdoor Life, vol. 63, p. 20-21, 66-67, illus. January, 1929.
- Porky: A Serious Menace to Timber Production. Forest and Stream, vol. 99, no. 1, p. 22-23, 58, illus. January, 1929.
- Rodent Control Work Popular, Agricultural Leaders' Digest, vol. 10, p. 40-41. January, 1929.
- Howell, Arthur H. Descriptions of Six New North American Ground Squirrels. Proceedings Biological Society of Washington, vol. 41, p. 211-214. December 18, 1928.
- Jewett, Stanley G. Lake County [Oreg.] --The Sportsman's Mecca. Oregon Out-o-doors, vol. 1, no. 2, p. 8, 15, illus. November, 1928.
- Lincoln, Frederick C. Forster's Tern in the District of Columbia. Proceedings Biological Society of Washington, vol. 41, p. 209-210. December 18, 1928.
- McAtee, W. L. Birds of the Golf Course: Horned Larks. Bul. Green Section U. S. Golf Assoc., vol. 8, no. 11, p. 232-233, illus. November, 1928.
- Munch, James C. The Toxicity of Thallium Sulphate. Journ. Amer. Pharm. Assoc., vol. 17, no. 11, p. 1085-1093. November, 1928.
- Mushbach, George E. The Nesting Birds of Woody Island [Mont.] Montana Wild Life, vol. 1, no. 6, p. 10-12, illus. November, 1928.
- Nelson, E. W. Charles Sheldon. American Forests and Forest Life, vol. 34, no. 419, p. 659-660, photo. November, 1928.
- Oderkirk, G. C. Effective Methods of Rat Control. Southern Agriculturist, vol. 59, no. 1, p. 10-11, illus. January 1, 1929.
- Preble, Edward A. The Peregrine Falcon; and Heath Hen Biography (review). Nature Magazine, vol. 13, no. 1, p. 43 and 64, respectively. January, 1929.
- Redington, Paul G. Certain Aspects of Wild Life Conservation. American Game, vol. 18, no. 1, p. 10-11, 18-20. December, 1928 - January, 1929.
- Certain Wild Life Aspects, Outdoor America, vol. 7, no. 7, p. 36-40, illus. February, 1929.
- Sheldon, H. P. The Over and Under Gun. Field and Stream, vol. 33, no. 9, p. 55-56, illus. January, 1929.

BIOLOGICAL INVESTIGATIONS

Noteworthy Banding Records.--During the past month the Survey received data that represent the longest flight record for a banded bird ever reported. A fledgling Arctic tern, banded at Turnevik Bay, Labrador, on July 23, 1928, by Oliver L. Austin, Jr., was found dead on the beach at Margate, 15 miles southwest of Port Shepstone, Natal, South Africa, on November 14, 1928. This is remarkable not only for the distance covered but for the time element, as the bird could have been only about three months old. It suggests the possibility that the birds, which are rarely or never seen on the south Atlantic coast of the United States, may cross the ocean to Europe and then proceed south.

Several interesting returns have been received this season from Mexico. A. L. Herrera of the Direccion de Estudios Biologicos, Mexico, has recently sent a circular letter to all his field officers, calling the banding work to their attention and instructing them to give it publicity so that additional returns might be obtained. As a direct result more return records have been reported from Mexico this season than for all previous years.

Studies Pelican Colony.--At the close of the A. O. U. meeting in Charleston, A. H. Howell, with Mrs. Howell, spent a vacation of 3 weeks touring in Florida. The trip extended down the east coast to Lower Matecumbe Key, across the Everglades on the Tamiami Trail from Miami to Fort Myers, and thence north through the central part of the State to Orlando and Gainesville. A day was spent at Brevard Island, in Mosquito Lagoon, examining and photographing the colony of brown pelicans, which was found to be in a flourishing condition. Nesting was in full progress, the nests, estimated to number more than 2,000, containing eggs and young in all stages, some of the young being able to swim but not to fly. Reports from local observers indicate a marked increase in numbers over last season. Conferences relative to the proposed publication on Florida birds were held with D. J. Nicholson, of Orlando, T. Van Hynning, director of the Florida State Museum, and R. J. Longstreet, of Daytona Beach, editor of the Florida Naturalist.

Report on Reindeer Management.--The bureau has received a report illustrated by numerous photographs on the reindeer herds of northern Alaska, on the basis of conditions observed during the summer of 1928, from W. B. Miller. The principal herds were studied at round-up time, when all individuals in the herds are corralled, counted, and branded. This affords an annual opportunity to record the increase of each individual herd. Young animals are branded in accordance with their ownership, and any unbranded animals found are distributed pro rata in accordance with the numerical size of the various herds involved. Full descriptions of methods of corralling, marking, slaughtering, and the preservation and handling of carcasses are given, and the photographs help to make clear the points covered. Special incidental points covered in the report include Depredations by Predatory Animals; Measurements and Weights; Relation of Weight of Horns to Age; and Destruction of Nesting Ptarmigan and Ducks by Reindeer.

Murie Detailed to Washington.--Olaus J. Murie, who has been stationed at Jackson Hole, Wyo., for the past 18 months, engaged in an intensive study of the elk of that region, has been detailed to the Washington office, where he will remain about two months. While at headquarters he will have opportunity to consult certain records and specimens in connection with his work in Wyoming, and also relative to his previous work in Alaska. Mr. Murie is accompanied by his family.

FOOD HABITS RESEARCH

Appointment of Two Junior Biologists Pending.--Although there has been further delay in filling the long-vacant position of botanist in the Division, certification for which has been received from the Civil Service Commission, progress has been made toward the appointment of two junior biologists to be engaged in field operations and studies of birds. Papers received from nine competitors have been graded and certification from this list is now awaited.

Sympathy is extended to H. L. Stoddard and family in the death of Mr. Stoddard's brother, which occurred recently.

FUR RESOURCES

Cooking Tests Made of Rabbit Meat.--In December several dressed rabbits of various ages and breeds were shipped to the Bureau of Home Economics from the U. S. Fur Animal Experiment Station, at Saratoga Springs, N. Y. Dr. Louise Stanley, chief of that bureau, had the meat prepared in various ways to determine the best methods for cooking it for home consumption and for restaurants and hotels. After the dishes were prepared, representatives of this division, the Bureau of Home Economics, and one of the hotels in the city were called in to test them.

Rabbit Club Organized.--J. W. Meyer, acting director of the U. S. Rabbit Experiment Station, advises that the school children of Fontana, Calif., have organized a rabbit club. Mr. Meyer will assist in giving the members information on breeding, feeding, and housing domestic rabbits.

Mr. Meyer addressed the December meeting of the Fontana Chamber of Commerce on the plans for the coming year's work at the station.

Attends Meeting of Parasitologists.--Dr. J. E. Shillinger attended the Fourth Annual Meeting of the American Society of Parasitologists in New York City, on December 28-30, held in conjunction with the American Association for the Advancement of Science.

Attends Fox and Fur Breeders Meeting.--Dr. Earle Dewey delivered a paper on the diseases of fur-bearing animals at a meeting of the Minnesota Fox and Fur Breeders in Minneapolis, Minn., on January 11 and 12, in which he summarized the results of the year's cooperative work with the Survey in vaccinating foxes on experimental ranches. The talk was illustrated by moving pictures. Great interest is developing in raising minks in captivity in Minnesota, and much of the time at the meeting was devoted to discussing problems of the mink farmers.

Visits Muskrat Marshes in Maryland.--Mr. Ashbrook accompanied representatives of the United States Chamber of Commerce to the eastern shore of Maryland on January 5 and 6 to inspect muskrat marsh areas there and to determine whether ditches should be cut in the marshes to increase the food and water supplies.

Foxes Pelted at Fur-Animal Experiment Station.--Fourteen fox pelts, comprising silvers, crosses, reds, and blues, taken from animals raised on the Fur-Animal Experiment Station, were shipped to Washington from Saratoga Springs on January 7. After photographs were made of them to file with the breeding experiment records, the pelts were shipped to New York City, where they will be sold in the spring fur sale.

Talks on Furs and Fur Farming.--Mr. Ashbrook, on the afternoon of December 21, addressed the members of the Housekeepers' Alliance at the Y. W. C. A. on "The More Popular North American Furs." He exhibited samples of the various species of fur animals mentioned in his address. On January 15, he gave a radio talk on "Fur Farming as a Sideline" over the noonday network broadcast of the Department.

New Leaflets Issued.--Leaflet No. 27, "Recommendations to Beginners in Fur Farming," Bi-990, "A Comparison of Feed Costs with Pelt Values of Silver Foxes, " and Bi-994, "Rabbit Manure as a Fertilizer." have recently been made available for distribution.

Personnel Changes.--Miss Ivah L. Lake, junior clerk-stenographer, at the Rabbit Experiment Station, at Fontana, Calif., resigned on January 31. Miss Alice Sandell, who has been with the Office of Information, Department of Agriculture, has been transferred from Washington, D. C., to fill the position thus made vacant.

ECONOMIC INVESTIGATIONS

Report of Ten-Year Predatory-Animal Program Printed.--The report called for by Congress on the feasibility of a ten-year cooperative program for the control of predatory animals in the United States as submitted by the Secretary of Agriculture, was referred on January 3 to the Committee on Agriculture of the House of Representatives and ordered to be printed. In the Senate it was referred to the Committee on Agriculture and Forestry. A copy of the printed report (House Document No. 496) has been mailed to each individual leader. On January 22, a bill (S.5488) authorizing the Secretary to carry into effect the program was introduced in the Senate by Senator Norbeck of South Dakota.

Represent Bureau at Stockmen's Meetings.--On January 17 Mr. Young left Washington to represent the Bureau at the annual meeting of the National Woolgrowers Association held at Phoenix, Ariz., on January 29, 30, and 31, and at the annual meeting of the American National Livestock Association to be held in San Francisco early in February. En route he stopped at Albuquerque, N. Mex., to confer with A. E. Gray, as well as with John C. Gatlin, of the Oklahoma-Arkansas district, who journeyed from Oklahoma City to Albuquerque for the purpose. Mr. Young will return to Washington about the middle of February.

W. E. Crouch during the week of January 7 represented the Bureau at the Annual meeting of the Idaho Woolgrowers Association and the Oregon Woolgrowers Association held at Boise, Idaho, and Baker City, Oreg., respectively. On his way West he held a brief conference between trains with A. M. Day, of the Wyoming district, at Cheyenne, and on his return East stopped at Denver several days for conferences with L. L. Laythe and with F. E. Carlough at the Eradication Methods Laboratory. Mr. Crouch returned to Washington on the 21st.

Tularemia near Wichita, Kans.--A. E. Oman, leader of rodent control of the Kansas district, reports human cases of tularemia in the Wichita section as a result of individuals coming in contact with infected rabbits.

Rabbit-Skin Business Flourishing in Kansas.--According to Mr. Oman, fall quotations of 70 cents a pound for black-tailed jack-rabbit skins have stimulated interest among western Kansas farmers and hunters to cash in on rabbit pelts. It is anticipated that several hundred thousand jack-rabbit pelts will be collected and sold this winter. One wheat grower of Scott County, who plays the jack-rabbit game during winter months, buys pelts on a commission basis for a fur company, in addition to hunting on an extensive scale for himself, and it is not unusual for him to bag 60 to 85 or more jack rabbits in an evening's hunt. He sells the skinned carcasses to hog and poultry raisers as meat supplement for their stock.

Wild Police Dog Taken in South Dakota.--Hunter John N. Martin, working in the South Dakota State Park and Game Preserve, reports taking a wild police dog that has been preying on the deer there. The animal was first seen and definitely known to be a dog by park officials nearly a year ago. Carcasses of the deer it had killed were being found, but a large part of the killings had been attributed to coyotes. The dog had evidently been raised on some farm in one of the towns of the Black Hills and no doubt had hunted about the home locality until he grew to maturity. During this time he had probably been used by his master in trailing wounded deer shot during hunting seasons and in this way had learned the habits of deer and how to run them down. Then came the call of the wild, and he began hunting by himself and foraging for his living as well as for pure excitement and sport of the chase. His wanderings brought him to the State park and game preserve, where deer were numerous under the protection enjoyed and were easily found and killed.

Early in the fall Hunter Martin took up the trail of this desperado of the wild and found him then ranging near the headwaters of Grizzly Creek. This is a rough and almost inaccessible place, where deer congregate in large numbers during the warmer months of the year when tourists are numerous in other parts of the sanctuary. He not only found the dog but learned from the signs in the dim game trails that coyotes were following him to feed from his kills. Laying out lines of traps and putting out poison stations, he trapped a number of bobcats and trapped and poisoned numerous coyotes. At a newly killed deer carcass he poisoned three coyotes in one night and a few days later took a fourth one there.

The dog had been at the deer carcass the night that his three coyote companions were poisoned, and, seeing what happened to his followers, he learned to avoid traps. On the death of his companions, he evidently became alarmed and left the locality, and Hunter Martin was unable to locate him on the game sanctuary or to see any more signs of him.

The hunter continued taking coyotes and bobcats until near the end of October, when the deer began moving to other ranges, to be followed by the few remaining coyotes. During this time two bobcats were trapped in one setting placed at an old deer carcass, a kill of this wild dog. About the beginning of November Martin moved to new hunting grounds. He knew, however, that the deer would return later to Grizzly Creek, as there was an abundance of winter feed for them, and that the coyotes would follow them. About the middle of December he found that deer in large numbers had returned and coyote tracks were numerous in the light snow that covered the ground. Obtaining and butchering a worthless horse from a ranch some miles away, he made a line of poison stations. Then he was interrupted by sickness and death in his family and was unable to return to his official work until the

first days of January. On this visit he found that he had gotten what he was after. Four coyotes had taken his poison baits at one station and at another station lay the police dog. During his career this animal alone had killed more deer in two years than a hundred hunters had succeeded in getting. In reporting it Hunter Martin said: "I got the finest police dog that you want to see. He did not get ten feet from the station. I think that this will be the last of the deer killing here."

Meadow Mice Damage Alfalfa Fields. An investigation of damage by meadow mice (*Microtus*) to alfalfa fields in Fall River County, S. Dak., has led the Board of County Commissioners to undertake rodent-control operations. This work is being carried on through the Survey in cooperation with the local county agent. From a 36-acre field of registered Grimm alfalfa near Oelrichs, S. Dak., which was visited by Louis Knowles, the Survey's leader of rodent control in that State, the owner had this year taken a little more than \$1,200 worth of seed in addition to a crop of hay. When Mr. Knowles visited the field about six or seven weeks after the seed crop had been cut, he found that the mice had destroyed nearly a fourth of the entire stand, ruining the field for seed production. Many other fields are being damaged by meadow mice in Fall River County, and reports of similar damage have also been received from Meade County, in the same State.

Returns from Western Trip.--Dr. J. C. Munch, consulting pharmacologist, with headquarters at Baltimore, Md., has returned from a trip through the Western States, where he conferred with leaders of the rodent-control and predatory-animal projects in Colorado, Utah, Nevada, and California. He spent the greatest part of his time at the Eradication Methods Laboratory at Denver in consultation with Mr. Garlough on matters directly affecting improved rodent poisons and in field and laboratory technique in developing them. He reports a pleasant and profitable trip and is especially pleased with the good cooperation afforded him by field members of the Division.

Coyotes Introduced into Alabama.--The county agent of Barbour County, Ala., which is in the southeastern part of the State near the Georgia border, has requested the Bureau to assist in getting rid of coyotes, which are now infesting that section. According to the county agent, three years ago some local fox hunters ordered some gray foxes, for liberation in that region to replenish the supply for hunting. Apparently the supposed gray foxes were coyote pups. About 20 of them were turned loose, and now have multiplied until they have become a serious menace to the farmers thereabout. Request has been made that heads of animals be sent to Washington in order that identification may be made as to species. Information has been furnished to assist locally in control operations.

Hunter McClure Takes Some Bad Ones.--Hunter James McClure, working on the coyote situation in northern Cook County, Wyo., reports taking five real killers during October. On October 11 he trapped an old female coyote that had killed 39 sheep from one ranch and 18 from another. Not a sheep has been lost on either ranch since that date.

A stockman from New Haven, Wyo., asked Mr. McClure to give him some assistance, as two old coyotes had cost him more than \$1,000 loss in lambs and turkeys during the past five or six weeks, and no hunter had been able to take them. Mr. McClure took four old coyotes, and the killing stopped. The skull of one old female, with only three legs and her teeth worn down almost to the gums, is now on exhibition in the Cheyenne office.

Cooperation in Wyoming Brings Results.--The cooperative farmer-stockman-hunter force in Wyoming turned in reports of a large catch during November to A. M. Day, State leader of the Survey. Forty-six hunters in 12 counties reported taking 452 coyotes and 31 bobcats. This was the first report received this season and includes some animals taken during October. These hunters work in districts that can not be covered by the regular salaried force, and from all reports are doing a great deal to supplement the work of the regular hunters. When all additional hunters are put to work there will be approximately 140 hunters in the State operating under the direction of Mr. Day.

The first monthly fur sale in Wyoming, consisting of 17 bears, 6 badgers, 40 bobcats, and 490 coyotes, netted the sum of \$4,953.57. These funds were turned back to the various cooperative organizations contributing funds for hunters.

Arizona Citrus Growers Control Pocket Gophers.--The campaign launched by the Arizona Citrus Growers to eradicate pocket gophers from all lands in the Salt River Valley planted to oranges and grapefruit is meeting with great success. During the past year the pocket gophers have been eradicated from more than 9,000 acres of citrus groves and adjacent lands. Poisoned sweet-potato baits were placed in about 47,000 pocket-gopher runways, and more than 300 traps were used in the follow-up drive. In the groves where members of the farm have consistently fought pocket gophers for several years only 2 of the rodents to the acre were found, but on outside areas adjacent to the groves the number was from 12 to 34 to the acre. The project has been supervised by Rodent-control Specialists Mack Taylor, Isaac Rogers, Walter Sharp, and Preston Mercer under the direction of D. A. Gilchrist, leader of rodent control in Arizona.

International Airport Cleared of Pocket Gophers.--One of the finest municipal airports on the southern border, located at Douglas, Ariz., recently became infested with pocket gophers, which threw up over 2,000 mounds of earth on the field, making the landing of planes difficult. The field is unique in that its southern border is the International boundary line between the United States and Mexico. The aviation committee of the city of Douglas requested the assistance of the Biological Survey in clearing the field of pocket gophers and provided a crew of men to place poison and traps. Three days work under the supervision of Mr. Gilchrist resulted in complete eradication. The Mexican government plans to develop a field immediately adjacent to the Douglas port on the Mexican side, so that aviation may be satisfactorily handled at this port between the two countries.

Anti-rat Campaign at Greensboro, N. C.--C. D. Schwartz, of the Eastern Rodent Control District, stationed at Raleigh, N. C., conducted an anti-rat campaign in cooperation with the Health Department of the city of Greensboro, N. C., during the entire month of January. Powdered red-squill baits were exposed on all premises in the business area. Sanitary inspectors of the Health Department placed all baits under the direction of Mr. Schwartz, and the owners of the premises paid for the baits used on their premises, at cost. Excellent results were obtained.

Conducts Exhibit at Horticultural Fairs.--E. M. Mills, of the Eastern Rodent Control District, stationed at Amherst, Mass., has attended horticultural fairs as follows: Springfield, Mass.; Brattleboro, Vt.; Concord, N. H.; Hartford, Conn.; Worcester, Mass.; Rochester, N. Y.; and Poughkeepsie, N. Y.; and staged the large departmental orchard pest exhibit at

each. This exhibit attracted unusual attention, and information concerning the control of the various pests included was distributed to a large number of inquiring persons.

Film on Woodchuck Control to be Made.--Arrangements have been completed by the Eastern Rodent Control Office to make a motion picture on the control of woodchucks in the Eastern United States.

GAME AND BIRD CONSERVATION

Southeastern Game Protectors Meet.--Mr. Sheldon and Talbott Denmead left Washington on January 24 to attend a conference of southeastern game protectors at Savannah, Ga., held on January 28. Immediately after the conference, at which he presided, Mr. Sheldon returned to Washington, but Mr. Denmead went on to Montgomery and Mobile, Ala., on business connected with the enforcement of the migratory-bird treaty act, and to confer with the State game commissioner. He will probably return to Washington about February 7.

The Maryland State Game and Fish Protective Association held its midwinter banquet at the Lord Baltimore Hotel, Baltimore, Md., on Friday evening, January 18. It was attended by a number of Survey members, including the associate chief, Mr. Henderson, and the following: Talbott Denmead, Frank G. Ashbrook, Frank L. Earnshaw, Frank P. Callaghan, Frank G. Grimes, and U. S. Game Protectors P. S. Farnham, George Tonkin, Albert Stadlmeir, and O. D. Steele. Mr. Denmead was called upon by the toastmaster to introduce the members of the Biological Survey present. Other speakers included Gov. Albert C. Ritchie, of Maryland, and Sen. Harry B. Hawes, of Missouri.

Talks on Alaska.--On January 4, Ernest P. Walker gave a talk on Alaska before a missionary society at Trinity Church, Washington. The talk, which was of a general nature, was illustrated with slides, and was calculated to assist the organization in arousing interest in the Territory and in raising funds for a hospital maintained by the Society at Nome, and for other institutions in Alaska.

Protector Ill.--L. L. Bryan, protector of Big Lake Bird Reservation, Ark., has been ill since early in December and unable to attend to his duties at the reservation. During his absence R. G. Hillhouse has been in charge. Mr. Byran has the best wishes of the Survey for his speedy recovery.

Abdon Perl Chambers

Abdon Perl Chambers, reservation protector of the Wind Cave National Game Preserve, S. Dak., died at his home at Hot Springs, S. Dak., on January 12 after a prolonged illness of actinomycosis, contracted some years ago when handling antelope having that disease. He had been connected with the Survey since December 21, 1914, at which time he was appointed warden of Wind Cave Preserve. He served in that position until last summer, when he was finally compelled to give up his work. For some time thereafter he was under treatment at the Marine Hospital at Chicago, Ill., and some improvement in his condition was noted. This

was only of short duration, however, and did not continue when he returned to Hot Springs. Mr. Chambers was a faithful and efficient employee and took great interest in his work at the preserve and in the animals under his care. He was born at Letart, W. Va., on June 16, 1878. Sympathy is extended to Mrs. Chambers and the five children in their great loss.

Beaver Planting Successful on Upper Mississippi.--The attempts recently made to stock the upper Mississippi River Wild Life and Fish Refuge with beaver colonies are beginning to show good results. Superintendent Cox in a recent report states that the beavers captured in northern Wisconsin last spring and liberated on the flats near Wabasha, Minn., are apparently doing well. Reservation rangers of the bureau recently discovered two fine new lodges constructed by the animals on a small slough near the place they were liberated. After seeing these, Mr. Cox stated that from the quantity of winter food collected by the beavers and submerged in front of the new lodges and from the extent the animals have cut the aspen and willow growth along the slough, there has been some increase from the pairs liberated. The fact that the beavers are remaining and building their lodges in the bottom-land instead of following up some of the streams coming in from the hills, confirms Mr. Cox's early opinion that the bottomlands are admirably adapted to beaver colonization. He considers it desirable to stock the bottomlands with beavers at various points along the 300 miles over which the refuge extends.

Sullys Hill Notes.--Seven golden eagles are making their winter home at Sullys Hill Game Preserve, N. Dak. A male and a female buffalo, calves of 1927, were recently shipped to the Smyth County Fair Association at Marion, Va., for exhibition purposes. Ten surplus elk from the preserve have been disposed of for meat.

Appointed Attorney at Upper Mississippi.--John E. Stevens has been appointed assistant attorney at the Winona, Minn., office.

Conditions at Elk Refuge.--On December 30, Protector A. P. Nelson estimated that there were 3,000 elk on the Elk Refuge, Wyo., adjoining ranches, and near-by foothills, approximately 1,800 of the number being on the refuge. These appear to be about the only elk that have come down into the valley, very few of the animals having been seen elsewhere. The depth of the snow in the mountains is below normal and is not compact, so that a large percentage of the elk probably are widely scattered over the timbered regions on the lower mountains.

Quite a distinct earth tremor was felt at the Refuge about 12 o'clock on New Year's day.

Secretary Commends Bravery of Game Protector.--Among the Christmas greetings received by Game Protector Kenneth F. Roahen, stationed at Peoria, Ill., was a letter from Secretary Jardine commending his courageous action early in December, in arresting two violators of Federal game laws, who with two others held guns on him for several minutes while he was attempting to apprehend them. The Secretary's letter was as follows:

"The Chief of the Bureau of Biological Survey has informed me of the incident in which you were involved on December 6, when in carrying out your enforcement work you

encountered four violators of the Migratory Bird Treaty Act, who held their guns on you for a considerable period while you were attempting to arrest them. The fact that you finally arrested two of the men while still covered by the gun of the violators speaks for your coolness and tact in a very dangerous situation. I am glad to know also that you deliberately held your hand from killing one of the violators when your own life was in jeopardy. I understand this was not the first time your life has been threatened. I want to take the opportunity presented to commend you highly for your behavior under these exasperating and dangerous circumstances and to assure you of my admiration for the courage shown by you."

Surplus Animals Disposed of at Bison Range.--Surplus animals, including 143 buffalo and 60 elk, in the herds at the National Bison Range, Mont., were slaughtered during December and the meat shipped to eastern markets for the holiday trade. Rapid increases beyond the safe carrying capacity of this range make necessary annual reductions in the herds. After this year's reductions, 325 buffalo and approximately 400 elk remain on the range. It is planned to dispose of additional animals from the elk herd. E. A. Goldman, of the Washington office, visited the Bison Range from December 7 to 21, to assist in the selection of the animals for disposal and to familiarize himself with present conditions on the range.

Deputy Warden Yanch Dies.--U. S. Deputy Game Warden Julius E. Yanch, of Houston, Tex., passed away on December 17 after only a few days' illness of pneumonia. The Survey extends sympathy to his widow and other members of his family in their bereavement.

Recover from Flu.--Game Protectors W. H. Ransom, of Spokane, Wash., and Frank Clarkson, of Houston, Tex., were quite ill with influenza for several days during December.

Sympathy is extended to Game Protector E. B. Whitehead, of Savannah, Ga., in the death of his mother, which occurred on January 2.

On Detail in Virginia.--Game Protectors P. S. Farnham, of Owego, N. Y., and Albert Stadlmeir, of Pleasantville, N. J., were detailed temporarily to work in Virginia during part of January.

Protectors in Washington.--Game Protectors W. H. Hoffman, of Mobile, Ala., and E. B. Whitehead, of Savannah, Ga., were called to Washington during January for conferences in regard to the work in their districts. Game Protector George Tonkin, whose headquarters are at Berkeley, Calif., is in the East at present for a conference with Survey officials.

Black Ducks Numerous in New York.--Mr. Farnham reported on December 22 that they were having their first real freezing weather of the winter in Owego, N. Y., and vicinity, and that the marshes were freezing over and the ducks coming to the open rivers and streams. He stated that more black ducks were there at that time than he ever remembered having seen before.

Indicted for Impersonating Federal Officer.--Patrick Logsdon, formerly of Kentucky, who is now serving time in jail at Galveston, Tex., for impersonating a United States game warden has been indicted for a similar offense by the Federal grand jury at San Antonio, Texas. The Survey is advised that at the expiration of his present sentence, Mr. Logsdon will be arrested and tried for the offense charged in the new indictment.

Importations.--Among the rarer birds imported during the month were 4 dial thrushes from China, and 3 Fiji shining parrots from the Fiji Islands.

Officers Active in Apprehending Violators.-- In Louisiana members of the State game force, United States game protectors, and Federal deputies have been engaged in a drive against persons selling ducks and otherwise violating the migratory-bird treaty act. As a result a large number of persons were apprehended and prosecuted in Federal court for the eastern district of Louisiana. Ten persons were arraigned for killing ducks and geese in excess of the daily bag limits. One was fined \$500, three \$300 each, two \$200 each, two \$10 each, one \$50, and one \$25, a total of \$1,895. In seven other cases in the same district, fines aggregating \$1,000 were imposed, while twelve persons received jail sentences of 30 days each and one of six months. Eight of those receiving jail sentences were likewise required to pay fines, six \$100 each and two \$200 each.

Protectors and deputies have been active also in Arkansas, California, Delaware, Illinois, Iowa, Maine, Maryland, Minnesota, Missouri, New Jersey, North Carolina, Texas, and Wisconsin, where many offenders have been apprehended. Several reports of night shooting on the Potomac River were received during December and January and one offender was apprehended near Alexandria, Va., hunting ducks at night and using a gun larger than No. 10-gauge. Four persons in Montana charged with hunting from an airplane and two in South Dakota committing a similar offense were arrested during December and have furnished bond for appearance in Federal court.

Lacy Act Investigations Yielding Results.--Several thousand invoices copied from fur-house records by United States game protectors have recently been referred by the Survey to various States. In a large number of instances where shipments were made contrary to State game laws, prosecutions were instituted against the shippers and have been generally successful. In Michigan, in addition to assessing a fine, the courts have ordered defendants to remit to the State the amount of money received for illegal furs. This procedure is now being followed in Montana, where in recent convictions the amount of money obtained for the contraband furs has been included in the fine assessed by the court. The Survey has recently inaugurated a new system in handling fur invoices and is doing everything possible to expedite work along this line. A card index is maintained of all shipments referred to the States, which contains complete information regarding the furs transported, the protector by whom reported, and the protector or the State official to whom subsequently referred, and a statement as to action finally taken. The State game departments have expressed appreciation of this cooperation and many have requested assistance from the Bureau in obtaining additional evidence for use in contested cases.

Reservation Trespass Cases.--Three new cases involving hunting and trapping on areas of the Upper Mississippi Wild Life and Fish Refuge not open to public shooting or trapping were submitted for prosecution during January.

One case relative to the hunting and killing of a wood duck on the Savannah River Bird Refuge was transmitted to the Solicitor during the month.

Treaty-Act Cases Terminated--Reports Received During December

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Barmeier, Neiderbrach**, Phillips**	1	Missouri	Hunting ducks	\$10
Barmeier, Steel*	2	"	Killing ducks in close season	\$50 each
" "	1	"	Killing ducks in close season	\$25
Bryan, Riddick	1	Arkansas	Shooting ducks after sunset	\$25
Fidler*	1	Illinois	Possessing a wood duck	\$15 and costs of \$35
"	1	"	Possessing a wood duck	\$15
Hoffman	2	Louisiana	Selling and serving ducks in restaurant	30 days in jail each
Hoffman, Earhart**, Pertuit**	2	"	Offering for sale and selling ducks	30 days in jail each
Hoffman, Holland*, St. Germain**	2	"	Selling ducks	\$100 and costs of \$25, and 30 days in jail each.
Holland*, Book**	1	"	Killing ducks and geese in ex- cess of daily bag limits	\$500 and costs
" "	3	"	Killing ducks and geese in ex- cess of daily bag limits	\$300 each
" "	2	"	Killing ducks and geese in ex- cess of daily bag limits	\$200 each
" "	1	"	Killing ducks and geese in ex- cess of daily bag limits	\$50
" "	1	"	Killing ducks and geese in ex- cess of daily bag limits	\$25
" "	2	"	Killing ducks and geese in ex- cess of daily bag limits	\$10
Holland*, Book** , Richardson**	1	"	Killing ducks in excess of daily bag limits	\$100 and costs
Holland*, Earhart**, Pertuit**, St. Germain**	1	"	Possessing and offering ducks for sale	\$100 and costs and 30 days in jail
"	1	"	Selling ducks	\$100 and costs and 30 days in jail
"	1	"	Hunting ducks in close season	Six months sus- pended jail sentence
Holland*, Earhart**, Pertuit**, St. Germain**, Wendel**	1	"	Offering for sale and selling ducks	\$200 and costs, 30 days in jail
Holland*, Earhart**, Wendel**	1	"	Selling ducks	\$100 and costs, 30 days in jail
Holland*, Pertuit**, Schreiber**	1	"	Selling ducks	\$200 and costs, 30 days in jail

Treaty-Act Cases Terminated--Reports Received During December--Cont'd.

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Holland*, Savastano**	1	Louisiana	Killing ducks in close season	\$100 and costs, 30 days in jail; previous 6 mos. jail sentence made effective
Riddick	1	Arkansas	Hunting ducks after sunset	\$10
Riddick, Chappell**	1	"	Possessing a wood duck	\$25
Riddick, Perry	1	Arkansas	Selling ducks	\$25
Roahen	4	Iowa	Possessing ducks in storage	\$15 each
"	1	"	Possessing ducks and geese in storage	\$15
"	1	Illinois	Possessing a duck in close season	\$15 and costs of \$25
"	1	"	Killing wood ducks	\$15 and costs of \$35
"	1	"	Possessing a wood duck	\$15 and costs of \$35
"	2	"	Hunting wood ducks	\$50 and costs of \$35 each
Roahen, Anderson*	5	Iowa	Possessing ducks in storage	\$15 each
Shaver, Lawrence*	1	"	Hunting ducks in close season	\$25 and costs of \$26
Steele	3	Missouri	Possessing ducks in close season	\$25 each
Whitehead	2	Georgia	Killing mourning doves in close season	\$15 each
"	1	"	Possessing a heron in close season	\$1
Whitehead, Howard**	2	"	Shooting mourning doves in close season	\$25 each
Whitehead, Michael**	1	"	Hunting and possessing mourning doves in close season	\$25

*U. S. Deputy Game Warden.

**Deputy State Game Warden.

Cases Reported for Prosecution

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Birsch	2	North Carolina	Killing ducks from a motor boat
Clarkson	2	Texas	Killing ducks after sunset
"	1	"	Killing and possessing sandpipers
Hoffman	2	Louisiana	Selling and serving ducks in a restaurant
Hoffman, Earhart**, Pertuit**	2	"	Offering for sale and selling ducks
Hoffman, Earhart**, Pertuit**, St. Germain**	1	"	Possessing and selling ducks
Holland*	1	"	Selling ducks
Holland*, St. Germain**	1	"	Offering for sale and selling ducks
Mushbach	4	Montana	Killing ducks from an airplane
Roahen	6	Iowa	Hunting ducks from a motor boat
"	3	"	Killing a duck from a motor boat
Shaver, Moore**	2	Minnesota	Killing ducks in close season
Smith	2	Maine	Killing ducks from a motor boat
Smith, Wallace*	2	"	Hunting and killing ducks from a motor boat
Stadlmeir	2	New Jersey	Hunting ducks after sunset
Stadlmeir, Wiley*	5	Delaware	Hunting ducks after sunset
Vogel*	2	Minnesota	Hunting ducks after sunset

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

THE SURVEY

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Vol. 10

Washington, D. C., February 28, 1929

No. 2

On March 4, Secretary of Agriculture Jardine will, after four years of progressive work in the interests of agriculture, retire to private life.

Doctor Jardine is a man who has placed responsibility on his associates and has expected full redemption of that responsibility. He has been greatly interested in the work of the Biological Survey and has been good enough to approve recommendations on important matters that have been brought before him.

He is a man who is exceedingly fond of the out-of-doors and all that goes with the out-of-doors, being a fisherman of no small repute, an expert golfer, and a hunter not averse to going out after a few ducks now and then. The kind of work in which the Biological Survey is engaged has I believe had a strong appeal to him.

So far as the conservation of wild life is concerned, his administration will go down in history as the one that recorded the passage by Congress of the Migratory Bird Conservation Act. The Secretary in this connection has made several very strong recommendations to Congress, and the influence of his favorable attitude on this legislation has been a large factor in the result obtained.

The members of the Biological Survey will join me in regret that officially we must part with Doctor Jardine as Secretary on March 4. He is to be located in Washington, however, and it will be the happy lot of many of us perhaps to contact with him frequently in the future.

We all wish him Godspeed.

Paul G. Redington

Chief

THE REFUGE BILL NOW A LAW

The Norbeck-Andresen Migratory-Bird Conservation Bill, which has been before Congress in one form or another for many years, has now become a law. It was passed by the Senate on April 18, 1928, and in amended form by the House on February 9, 1929, by unanimous vote (219 to 0). On the 11th the bill as amended by the House was agreed to by the Senate without a dissenting vote. It was approved by the President on February 18. The primary purpose of the new act is to establish inviolate sanctuaries for migratory birds. To carry out this purpose it authorizes appropriations aggregating \$7,875,000 over the ten-year period beginning July 1, 1929. For the information of members of the Survey I want to quote part of a telegram sent by me from Ogden, Utah, to the Washington office on April 26, 1928, after information had been received that the bill had been passed by the Senate:

"If this amendment [Section 17] can be eliminated am personally willing to accept bill which constitutes enabling act for establishment of refuges * * * * also taking chance if bill is put on statute books on securing funds through authorization in bill. * * * Believe finally all those sincerely desirous of obtaining Federal waterfowl refuges should join in securing legislation for this purpose. Please explain my position to those interested * * * and advise them that in view of fact so many interests in country want Federal refuges, resentment will be caused by action taken to kill legislation which may be passed if objectionable feature is eliminated."

This wire was based on the belief that legislation embodying the one-dollar license feature and the public shooting grounds could not pass because of the bitterness with which these two features had been assailed. Section 17, which was held to be objectionable, if retained in the bill would have operated to turn the refuges determined upon as needed by the Federal Government over to the States for administration, the Federal Government, however, still bearing the responsibility of financing the cost of such administration.

At a joint meeting of the International Association of Game, Fish, and Conservation Commissioners and the Western Association of State Game Commissioners, held at Seattle, on August 29, 1928, at which most of the important wild-life conservation interests were represented, a movement was started that eventuated in the establishment of a National Committee on Wild Life Legislation. This committee, whose membership is by this time well known to all of you, has worked assiduously to put this legislation over. The House so changed the bill as it came over from the Senate as to eliminate the amendments that were objectionable to this Committee and to the Department.


A great victory has been won, a victory that will mean much for the welfare of migratory wild fowl in the years to come. It will add materially to the activities of the Biological Survey, which will, under the direction of the Secretary of Agriculture, carry out to the best of its ability the features of the bill.

Members of the Survey will be interested, I am sure, in the following letter on the subject, which I addressed to my predecessor, Dr. E. W. Nelson, under date of February 20, 1929:

"I want to write you briefly, now that the Migratory Bird Conservation Bill has been passed by both Houses of Congress and approved by the President, to state my opinion that the success that has been attained would probably not have been possible had it not been for the strong foundation work which you, the late Charles Sheldon, Mr. John Burnham, and others have performed during the past eight years.

"Indeed, I feel sure that but for your appreciation years ago of the danger confronting our migratory wild fowl through the steady reduction in resting, feeding, and breeding areas, and your conviction that the establishment of permanent refuges was the remedy for this situation, we might not now have on the statute books refuge legislation as comprehensive as that embodied in the Migratory Bird Conservation Act.

"While there are some features of the enacted bill that may not be as satisfactory to you as were those of previous bills, I believe you should be happy in the result, for after all refuges will be established. That your efforts in the past to secure this legislation deserve the recognition of all organizations and individuals that know of your long connection with it, is beyond question."



Chief

GENERAL NOTES

Chief of the Survey Honored.--Mr. Redington has received notice that on January 15, 1929, he was elected a life member of the Academy of Natural Sciences of Philadelphia, "in appreciation of his interest in the work of the institution, assistance given to its representatives, and his efforts toward the conservation of animal life." He was also recently made a life member of the Massachusetts Fish and Game Association.

Speaks at Forestry Congress.--Mr. Redington on his trip to the New England States late in January and early in February, gave a talk at the banquet-meeting of the Third New England Forestry Congress, at the Hotel Bond, Hartford, Conn., on February 1, on "The Beneficial Effect of Wild Life on Forest and Other Lands." Other speakers of the occasion were Dr. J. Horace McFarland, of Harrisburg, Pa., and L. F. Kneipp, of the United States Forest Service. Mr. Redington also addressed the Joint Session of the State Legislature of New Hampshire, at Concord, on January 30, on "Tendencies in Modern Game Administration."

The Agricultural Appropriation Bill for the fiscal year 1930 was signed by the President on February 16, 1929. In conferences between the Senate and House two changes were made in the bill as it passed the Senate. The Senate receded from its stand in reinstating an item of \$5,487 for a survey of the numbers, breeding conditions, and present status of the woodcock, and this appropriation therefore was lost. The Senate's increase of \$8,000 for predatory-animal work in Alaska was reduced in conference to \$5,000. The total appropriated for the Bureau, therefore, amounts to \$1,429,166.

Speak at Biological Society.--At the meeting of the Biological Society of Washington on the evening of February 9, Dr. T. S. Palmer led a discussion on the topic "Some Early Collectors and Recent Changes in Wild Life Conditions." Dr. Walter P. Taylor addressed the society on "Important Wild Life Problems in Arizona." At the meeting of the society on February 23, the speakers were Vernon Bailey and Dr. John C. Merriam, president of the Carnegie Institution of Washington. Their subject was the "Grand Canyon." Doctor Palmer spoke briefly on the lives of Dr. F. A. Lucas and Dr. Jonathan Dwight, both of whom died during the past month.

Death of Dr. F. A. Lucas.--Word has been received of the death, on February 9, at his home in Flushing, N. Y., of Dr. Frederic A. Lucas, director emeritus of the American Museum of Natural History and formerly curator of the department of comparative anatomy of the United States National Museum. Though never connected officially with the Biological Survey, he was for many years closely associated with our work and made many close friends in the Bureau. He was author of "The Tongues of Woodpeckers," published as a part of Bulletin No. 7 of the Division of Ornithology and Mammalogy. Doctor Lucas was interested and active in many lines of research, especially osteology, museology, and comparative anatomy, and will be remembered as the author of "Animals of the Past" and "Animals before Man in North America," published more than 25 years ago.

Visitors.--Among recent visitors to various offices of the Bureau were Carlos Avery, of New York City; Fred H. Kennard, of Newton Center, Mass.; Aldo Leopold, of Madison, Wis.; David C. Mills, of New York City; and John Nieman, of Thiensville, Wis.

Radio Talks for March.--Biological Survey talks for the month of March in the Department's radio program are scheduled as follows:

Snakes.....	March 12
New Refuges under the Migratory-Bird Conservation Act, by	
Paul G. Redington (in person), 1:15 p. m., Eastern Standard Time.....	March 19
Rabbits for Easter, by Frank G. Ashbrook (in person), 1:15 p. m.,	
Eastern Standard Time.....	March 29

List of Workers Revised.--The mimeographed list of the personnel of the Biological Survey (Bi-945) has been revised to February 1, 1929, and one copy has been sent to each field office. Additional copies may be had as needed on request.

Outside Publications.--The following articles by members of the Bureau appearing in outside publications have been reported during the month:

Earnshaw, Frank L. Department of Game and Fish Laws--Elastic Game Laws. Field and Stream, vol. 33, no. 10, p. 112-114. February, 1929.

- Gabrielson, Ira N. Live Stock "Victimized". Oregon Farmer, vol. 48, no. 6, p. 8, February 7, 1929.
- Rodents Cause Big Loss. Oregon Farmer, vol. 48, no. 4, p. 5. January 24, 1929.
- Gophers Hard on Bulbs. Oregon Farmer, vol. 47, p. 6. September 20, 1928.
- Lincoln, Frederick C. What Constitutes a Record? Bulletin of the Audubon Society of New Hampshire, vol. 8, no. 2, p. 17-20. December, 1928.
- McAtee, W. L. Madon's Les Corvides d'Europe (review); Further on Birds in the Ecology of Spitzbergen; St. Clair-Thompson on the Protection of Woodlands. The Auk, vol. 46, no. 1, p. 139-145. January, 1929.
- The Principles of Systematic Entomology. Entomological News, vol. 40, no. 2, p. 64-66. February, 1929.
- European Game Conditions: A Comparison with Game Management in this Country. Field and Stream, vol. 33, no. 10, p. 19. February, 1929.
- McAtee, W. L., Preble, E. A. [and Wetmore, Alexander]. Christmas Bird Census. Bird Lore, vol. 31, no. 1, p. 39-40. January-February, 1929.
- Murie, Olaus J. Nesting of the Snowy Owl. The Condor, vol. 31, no. 1, p. 3-12, illus. January-February, 1929.
- Redington, Paul G. Conservation of Wild Life in Alaska Fostered by Game Commission and Biological Survey; and, Development of Reindeer Industry Fostered in Alaska through Work of Biological Survey. United States Daily, vol. 3, nos. 273 and 274, p. 9 and 9, respectively. January 24 and 25, 1929.
- Shillinger, J. E. Fur Animals and the Veterinarian. North American Veterinarian, vol. 9, no. 12, p. 43-44. December, 1928.
- Stoddard, Herbert L. Progress of the Cooperative Quail Investigation. American Field, vol. 111, no. 3, p. 59-60. January 19, 1929.
- Young, Stanley P. [and Carhart, A. H.]. Three-toes of the Apishapa. Blue Book Magazine, p. 138-148. March, 1929.

BIOLOGICAL INVESTIGATIONS

Bands Ducks in Louisiana.--F. C. Lincoln returned on February 15 from the Paul J. Rainey Wild Life Refuge, on the coast of Louisiana, where he spent a month banding wild ducks and geese. This work was made possible through the cooperation of the American Wild Fowlers. An achievement of considerable importance was the perfection of methods for the capture of canvasback ducks, which had never before been taken in numbers. Unfortunately no ducks of any species were common. Blue geese were plentiful, however, and after careful study of their feeding and roosting habits, methods were worked out that it is believed will ultimately result in the banding of these interesting birds in large numbers.

Tagged Elk Killed.--An elk killed on Sahare Creek, a tributary of Fish Creek in the Gros Ventre Valley, Wyo., on November 20, 1928, was found bearing one of the tags (No. 7) put on at the Elk Refuge at Jackson, Wyo., on March 4, 1925. The animal had a six-point head of fair size.

Working on Caribou Study.--O. J. Murie, who has been prosecuting his taxonomic studies of the caribou of northern America, made a short trip to New York and Philadelphia late in February to study the specimens in the museum collections there.

Status of Reindeer Meat Made Public by Federal Committee.--A statement on the status of reindeer meat under the Federal Meat Inspection Act, by a Joint Committee of the Department of the Interior and the Department of Agriculture on the Reindeer Industry of Alaska, was made public on February 8. The statement was prepared to make clear to State and municipal health officers, conservation and game commissioners, and the general public that reindeer are not included in the Federal Meat Inspection Act, but may be received into the United States and shipped interstate, and that when marked for identification they may be received and handled in federally inspected plants. The statement was made for the joint committee by a subcommittee, consisting of Paul G. Redington, chief of the Survey; Dr. J. R. Mohler, chief of the Bureau of Animal Industry; and Dr. William Hamilton, assistant chief of the Alaska Division of the Bureau of Education.

FOOD HABITS RESEARCH

Working in Southern California.--Theo. H. Scheffer devoted the entire month of January to field investigations in southern California in connection with his studies of moles and of rodents, particularly pocket gophers. This work took him to points in San Diego, Ventura, Los Angeles, and Imperial Counties.

Botanist Appointed.--Neil Hotchkiss took up his duties as botanist in the division on February 16. Mr. Hotchkiss is not new to the service, having formerly carried out, under temporary appointment, botanical-survey work in the Middle West.

Taylor Spends Week in Washington.--Dr. W. P. Taylor spent from February 6 to 15 in Washington in his capacity as a member of the executive council of the National Federation of Federal Employees, in connection with deliberations relative to the Brookhart-Celler and the Lehlbach salary bills and retirement legislation. The visit afforded an opportunity for conferences with the Chief and other members of the Survey relative to his various lines of work in the Southwest and the official reports on the results.

FUR RESOURCES

Attends Sale of Silver-Fox Skins.--Mr. Ashbrook attended the sale of fox pelts offered by the New York Auction Company early in February. The total collection consisted of 10,238 skins, divided into 5,108 lots. The highest price recorded on the opening day was \$810 for a fine, clear, half-silver pelt, produced on a ranch in Michigan. The highest price paid during the sale was \$850 for a half-silver pelt. The average for all skins was \$162. Mr. Ashbrook reports that the production of silver-fox pelts this year is the largest on record since the beginning of the industry, and the financial return the greatest. It is estimated that at the close of the sale this year there will have been offered approximately 85,000 skins.

Tests of Rabbit Meat Made.--The meat inspection division of the Bureau of Animal Industry is cooperating with this division in making analyses of rabbit meat to determine its nutritive value as compared with other meats. Live rabbits for this purpose were shipped to Washington from the Fur-Animal Experiment Station, at Saratoga Springs, N. Y., and killed and dressed here so that the material used in making the analyses would be fresh.

Aids in Controlling Outbreak on Fox Ranch.--Dr. Earle Dewey was called to Jackson, Mich., early in February to aid in controlling an epizootic on a fox ranch. Doctor Dewey's tentative diagnosis of the trouble indicates that it was fox encephalitis, one of the diseases that are being studied in the cooperative work at the University of Minnesota.

Donations to the Rabbit Station.--A. Weygandt, secretary of the American Rabbit and Cavy Breeders Association, recently donated \$100 to be deposited in the revolving fund of the U. S. Rabbit Experiment Station, at Fontana, Calif. His association has also donated \$100 for this purpose. Mrs. Katherine J. Bradley-Dyne, of British Columbia, has donated a pair of Angora rabbits to the station for experiment purposes. Although there is no recognized market in this country for Angora rabbit wool, the popularity of this breed is increasing. In Europe this wool is used to manufacture thread and fine underwear.

New Rabbit Unit Being Constructed.--John W. Meyer, acting director of the Rabbit Experiment Station, reports that the construction of a new rabbit unit is progressing. The structure is being built on lines similar to those employed in rabbitries in southern California. The hutches are arranged in two tiers suspended from the roof beams over a concrete floor, and the only shelter is a roof over the top of the hutches.

Talks on Muskrat Farming and Furs.--Mr. Ashbrook spoke before the Lebanon Chapter of the Eastern Star, Washington, D. C., on the evening of February 12 on the subject "Muskrat Farming." He illustrated his talk with a moving-picture reel, "The Muskrat Industry on the Eastern Shore of Maryland," loaned by E. Lee LeCompte, State game commissioner of Maryland. On February 25 he addressed a meeting of the District of Columbia Home Economics Association on the subject "The Most Popular North American Furs."

Rabbit Station One Year Old.--Arrangements have been made at Fontana, Calif., to celebrate the first anniversary of the establishment of the Rabbit Experiment Station, and on March 2 an appropriate program will be presented.

Bulletin on Rabbit Diseases Issued.--Farmers' Bulletin No. 1568, "Rabbit Diseases and Parasites," by Dr. Benjamin Schwartz and Dr. Warren B. Shook, of the Bureau of Animal Industry, has recently been published by the Department and is available for free distribution. It is a much needed publication and will be especially valuable to veterinarians and rabbit breeders.

ECONOMIC INVESTIGATIONS

Returns from Western Trip.--Mr. Young returned to Washington on February 18 from a field trip that took him into the States of New Mexico, Arizona, California, and Colorado. He represented the Bureau at the annual meeting of the National Woolgrowers Association at Phoenix, Ariz., January 29 to 31, and of the American National Livestock Association at San Francisco, February 5 to 7. At both these conventions strong resolutions were unanimously adopted endorsing the ten-year program of predatory-animal control submitted by the Secretary to the present Congress.

En route to the West and on his return East, Mr. Young held conferences with Leaders J. C. Gatlin, A. E. Gray, M. E. Musgrave, D. A. Gilchrist, C. G. Poole, Joseph Keyes, L. L. Laythe, and A. M. Day, with District Investigator E. E. Horn, and with F. E. Garlough, in charge of eradication methods at the laboratory at Denver.

While at Albuquerque, N. Mex., he was requested to come to Santa Fe for a meeting of the executive boards of the New Mexico Wool Growers Association and of the Cattle Growers Association, to discuss legislation relative to cooperative control work, now pending before the New Mexico State Legislature; and while at Denver he was likewise requested to appear before the subcommittee on appropriations of the Colorado Legislature to discuss cooperative work in Colorado. An additional meeting was held with a representative committee of the Lamb Feeders of Northern Colorado at the request of State Senator Nate Warren, of Fort Collins, Colo., where information was desired relative to cooperative work in the elimination of predatory dogs in the lamb-feeding sections of this part of Colorado. Mr. Young found that much interest is being taken in the western range States in the ten-year control program and a desire on the part of all stock interests to see this plan put into effect by the Federal Government as speedily as possible. Since the printing of the Secretary's report on the ten-year program (House Document 496), the Bureau has received copies of many strong resolutions of endorsement urging its adoption.

New Assistant in South Dakota.--To fill the position made vacant by the resignation of W. B. Elley, Robert P. McFarland, formerly a hunter of the Montana force, has been promoted, effective February 1, to the position of assistant leader of predatory-animal control for the South Dakota district, a position for which he has qualified by civil-service examination

Market for Jack-Rabbit Skins Assists in Control Operations.--During the present season a good market for pelts has been a great incentive for persons to destroy jack rabbits. Prices for the black-tailed jack-rabbit skins have averaged about 70 cents a pound during the season, and a better price is paid for the white-tailed rabbit skins. The opportunity afforded by this market has been used to good advantage in extending control operations by rodent-control leaders in South Dakota, Wyoming, Idaho, Colorado, Utah, Washington, Oregon, Montana, and Arizona. Reports indicate that a large number of skins have been put on the market during the present season. Louis Knowles, leader in the South Dakota district, reports that more than a million dollars will be brought into that State this winter from this source.

Gelatine-Glycerine Tablets Becoming Popular in Coyote Control.--During the coyote poisoning season so far this year, 1,163,500 gelatine-glycerine tablets have been prepared by the laboratory at Denver and distributed to the various districts. Practically all the districts in which coyote-poisoning campaigns are conducted have used these tablets, and in practically all cases favorable results have been reported. Following are some of the comments of the various leaders in regard to the use of the tablets:

A. E. Gray, New Mexico district: "The reports from field men indicate that the strychnine in tablet form is much more satisfactory than in the powdered form. It kills quickly, is much more pleasant to handle, and permits greater utilization of animal fats used for bait."

Charles G. Poole, California district: "The new poison cubes are proving to be entirely satisfactory from all standpoints, wholly proving their practicability and desirability."

E. R. Sans, Nevada district: "We have used the gelatine-glycerine tablets almost entirely for this winter's campaign, the Denver office furnishing all but about 50,000, which were prepared here in Reno."

L. L. Laythe, Colorado district: "One thing I have to report with pleasure during the quarter is the amount of poison placed. The increase in poisoning operations may be credited to a large extent to the use of the new tablets, which gives the hunter more time to prepare his stations, in that it does not take so long to make up a poison bait containing the pill as it did the poison bait containing the dry powder, or 2-D poison."

L. J. Goldman, leader in the Idaho district, where more of these tablets have been used than in any other district, has reported the results obtained through their use to be entirely satisfactory and that this manner of handling coyote poison is much more economical and efficient than the use of loose poison.

It is thought that the time is opportune to standardize the use of predatory-animal poison, and if the gelatine-glycerine tablets are satisfactory there seems to be no reason why this should not be the standard form of poison for all districts.

Farmer-Hunter System Giving Results in Wyoming.--According to A. M. Day, leader in the Wyoming district, the farmer-hunter work in that State is proving to be a valuable asset to the regular hunters. During this quarter at least 1,226 predatory animals have been killed by these farmer-hunters. "This work," says Mr. Day, "is not only recording a large number of animals, but is building up a much finer spirit among the sheepmen than has obtained in the past. It allows us to give some type of service to everyone in the State asking for it. If funds are not available for a regular hunter we can place a farmer-hunter in the territory with the approval of the landowner and make a friendly contact with these people by giving them some service."

Outbreak of Rabies in Washington.--Several recent examinations have indicated positively that rabies exists in certain portions of the State of Washington. Steps have been taken by Dr. Glen R. Bach, leader of predatory-animal control in the State, to relieve the situation by employing additional hunters, made possible by additional funds released from the Secretary's reserve.

Cooperator Telegraphs News of Wolf Capture.--One of the Bureau's cooperators in the Arizona district was so pleased with the capture of a certain notorious wolf that he wired M. E. Musgrave, leader of predatory-animal control in that State, as follows: "Hunter Fields caught old wolf today. I will be at the Arizona Hotel at Phoenix the night of the 18th. Would like to see you and tell you all about it." During the past four or five years this wolf had destroyed thousands of dollars' worth of livestock on the range in Arizona and had evaded capture until Mr. Fields was put on the trail.

Circumstantial Evidence Falls Down: Squill Vindicated.--The general inspector of the State Plant Board of Mississippi recently reported to James Silver, leader of rodent control in the Eastern United States, the death of five hogs apparently from having eaten rats that were killed with red-squill bait. This appeared to be a clear case of squill having caused the death of the hogs, and had the matter been allowed to rest at this time red squill would have absorbed the blame. Fortunately, however, those interested in the case were not content to jump at conclusions from the evidence at hand without definite proof. Therefore the stomach contents of the dead hogs were sent to the State chemist for analysis, after which the inspector wrote as follows: "With regard to the hogs that died here, the stomachs

were being examined at the time I wrote you but the State chemist had not made his report. He has since reported finding only the faintest traces of calcium oxalate but found a considerable quantity of arsenic. At the same time he examined the mixture the hogs were receiving, and found it to be the source of the arsenic. Apparently a student in making the mixture had used calcium arsenate instead of calcium carbonate. So that clears the squill of all suspicion." This incident is an excellent example of the danger of jumping at conclusions on circumstantial evidence.

Wolf Attacks Team of Horses.--According to J. C. Gatlin, leader of predatory-animal control in the Oklahoma-Arkansas district, a wolf, taken by Hunter Hinds on January 29, is reported to have attacked a team of horses. A farmer of Clayton, Okla., was hauling wood with four horses when a large red wolf attacked his lead team. He jumped off his wagon and finally drove the wolf away with a club. Although he had his hand and arm slashed by the wolf in the encounter, he inflicted a deep scalp wound on the wolf.

\$100,000 Appropriated by California for Rodent Control.--The State Department of Agriculture of California has been granted an emergency appropriation of \$100,000 for the suppression of rodents in the plague areas of the State, expenditure of which is contingent on a like appropriation by the counties involved. Private individuals will be asked to furnish a like amount either in labor or the equivalent, which will bring the grand total for this work to \$300,000.

Laborer Prepares 65 Tons of Thallium Bait.--A laborer employed by the Horticultural Commissioner of Santa Clara County, Calif., has prepared single-handed during the past two years more than 65 tons of thallium grain bait for use in rodent control. He used every ordinary precaution as advocated by the Bureau, and it is gratifying to report that he has suffered no ill effects.

16,200 Pounds of Strychnine Used on 4,000 Acres.--According to Joseph Keyes, leader of rodent control in the California district, Merced County, Calif., used 16,200 pounds of strychnine grain in the treatment of 4,000 acres for ground-squirrel control. This is more than 4 pounds to the acre. It is estimated that 97 per cent of the ground squirrels were destroyed, probably a high record for the size and degree of the infestation.

Mr. Keyes also states that it was necessary to use only 3 pounds of thallium grain to re-treat 90 acres in Merced County in November. In the first treatment the previous March, it had required 165 pounds of the poison. Efficiency of the operation and of the poison is obvious.

State Establishes High Poison Record.--Complete returns from the various cooperatives in California show that there were distributed 2,173,454 pounds (1086 tons) of poisoned grain during the season just closed, in addition to 640,085 pounds (320 tons) of carbon disulphide and 10,659 pounds of calcium cyanide. The operations involved in the distribution of this immense quantity of poison are better understood when it is stated that this is one and one-half times more poisoned grain than was distributed in all other districts combined. The fumigants distributed represent more than five times the quantity used by other districts.

Utah Leaders Fight Jack Rabbits.--Rabbit control was hailed with unusual enthusiasm during December and January in the Utah district. According to Leader R. Scott Zimmerman, local sportsmen cooperated by organizing shoots and community drives for dinners and dances, and the sale of rabbit pelts increased steadily as the season advanced. Rodent-control committeemen reporting from Snowville, Utah, stated that 10,000 jack rabbits were collected after 250 pounds of alfalfa leaves were used. They estimate that fully 18,000 to 20,000

jack rabbits were killed during the poison drive at the close of December. Under the direction of Ed. Rasmussen, assistant predatory-animal control leader in the Utah district, 6,000 jack rabbits were recently killed on a ranch in San Juan County belonging to a member of the State legislature. Twenty ounces of strychnine alkaloid were used.

Present Papers on Rodent Control.---V. L. Johnson, assistant in the Utah district, attended the Southern Utah Leadership Convention at St. George during the second week in January and presented a paper entitled "Protect Your Birds but Exterminate Your Rodents." R. S. Zimmerman, leader of rodent control, presented a paper at the annual meeting of the Intermountain Livestock Sanitation Association held at Ogden January 8 and 9 on the subject "Rats, a Disease and Menace." This was followed by the Bureau film "How to Get Rid of Rats." Some 65 veterinarians from the intermountain section attended the meeting, as well as officials from the Bureau of Animal Industry and livestock men who were attending the Intermountain Livestock Show then being held at Ogden.

Effectiveness of Pocket-Gopher Poison Proved.---How soon will pocket gophers die after poisoned sweet-potato baits are placed in the tunnels of their underground runways? Farmers have asked this question of Biological Survey representatives hundreds of times in the past, but no positive answer could be given. A member of the board of governors of the Salt River Valley Water Users Association at Phoenix, Ariz., and Mack Taylor, rodent-control specialist of the Biological Survey, on January 17 produced proof that at least two pocket gophers were killed within 30 minutes after the bait was placed. A pocket-gopher-control demonstration was being given in a citrus nursery. Just 30 minutes after the bait was placed, a nest about 40 feet away was broken into, and it was found that the mother pocket gopher had in that time carried the poisoned sweet potato to the nest where it was partly consumed by two young gophers about the size of mice, which died a few minutes later. The poisoned bait was found in their stomachs.

Robinson Brothers Resourceful Hunters.---Orin and Oliver Robinson, of Rock Springs and Farson, Wyo., are two hunters who are equal to emergencies. Conditions in western Wyoming had been so bad that travel by auto was out of the question and horses could only a limited distance through the deep, crusted snow. These men rigged up a snowmobile, which, they said, "makes the snow country look like a highway." As a result they killed 33 coyotes during January. Oliver tops the honor roll with 26.

On one trip over the Little Colorado Desert, where poison stations had previously been established, they picked up 17 poisoned coyotes. This trip was made through an absolutely uninhabited desert and at a time when the thermometer hovered around zero most of the time.

They tell of an interesting experience with a coyote on the ice of Big Sandy. They chased him with an automobile 10 miles before getting close enough for a shot, and after racing this far the animal was still going 30 miles an hour when overtaken.

GAME AND BIRD CONSERVATION

Game Protectors Confer at Savannah.---Mr. Sheldon and Talbott Denmead attended a conference of U. S. game protectors at Savannah, Ga., on January 28. Protectors W. L. Birsch, W. H. Hoffman, J. Q. Holmes, and E. B. Whitehead were present, J. V. Kelsey being unable to attend on account of important field work. Arrangements were made for Protectors Birsch and Whitehead to investigate conditions in South Carolina and Georgia, and Protectors

Holmes and Hoffman were assigned to continue their work in the Gulf region. Messrs. Sheldon and Denmead inspected the Savannah River Refuge in company with Protector Whitehead, and also looked over other areas in the vicinity of Savannah. At the conclusion of the conference Mr. Denmead returned to Washington, and Mr. Sheldon, accompanied by Protectors Holmes and Hoffman, went on to Montgomery, Ala., where a conference was held with State Game Commissioner I. T. Quinn, after which they went to Mobile Bay and spent two days looking over that district. The change in their itineraries was made after the statement regarding them had been written for last month's SURVEY.

Speaks at Kentucky Sportsmen's Convention.--Mr. Denmead attended the Fifth Annual Sportsmen's Convention held February 7 and 8 at Ashland, Ky., and made an address on "Problems and Prospects in Wild Life Conservation." The meeting was well attended by Kentucky sportsmen, and the speeches evidenced a sincere desire to improve game conditions in that State. Game Protectors Charlton and Linebaugh also attended a part of the convention and consulted with Mr. Denmead and the Kentucky game authorities relative to the enforcement of the migratory-bird treaty act on the Ohio River. Members of the conference were entertained at dinner one evening by the Boyd County Game and Fish Protective Association.

Secretary Answers Protest Against Kodiak-Bear Protection.--In line with the policy of the Department on predatory-animal control, which, while designed to safeguard farming and stock raising, is opposed to the extermination of any of the interesting species of the wild life of the continent, Secretary Jardine, in response to a lengthy petition presented through Congressional Delegate Dan Sutherland early in February, has explained their rights in the matter to residents of the Kodiak-Afognak Islands group of southern Alaska. The petitioners cited the growing agricultural activities of these islands and the losses connected therewith, particularly of stock raisers, through the depredations of the big brown Kodiak bear. They consider these giants of the wild the most vicious and dangerous of the carnivorous animals of Alaska, and asked that all protection be removed from them, so as to permit all persons to kill them in any manner at any time of the year.

The Secretary called attention to the fact that the present regulations allow an open season on large brown and grizzly bears from September 1 to June 20, with the proviso that these bears may be taken at any time when about to attack or molest persons or property, or when encountered within half a mile of a human habitation. He also stated that the Alaska Game Commission, after a careful study of the whole situation, had recommended a modification of the regulation which would give protection to these big bears as game animals as formerly, but with the further proviso that on the islands in question, residents engaged in agricultural pursuits may kill such animals when they are considered a menace to persons, livestock, or property.

The Secretary expresses his confidence that when ranchers on the islands learn of the wider latitude thus afforded, they will find that they have sufficient leeway in necessary control measures. He also mentions the fact that preserving this species in the nonagricultural mountain areas of the interior will serve to perpetuate the largest carnivorous land mammal in existence.

The statement was cited of Mr. Redington, who spent some time in the region in 1928, and of sportsmen who have come in contact with the species, that these giant bears do not relish the presence of man, and when unmolested rarely attack human beings. Their food

consists for the most part of berries, various roots, grasses, and other vegetation, with some fish, and while individuals may develop stock-killing propensities, they are not as a species inimical to agriculturists. The Secretary states that the new regulation is receiving favorable consideration and that it should be in effect by July 1, and expresses his conviction that the petitioners will thus obtain practically all they are asking for.

If the department should remove all protection from this notable species and thus open the way to its eventual extermination, there would be a heavy fire of justifiable criticism not only from the many organizations and individuals who have in the past derived both sport and pleasure from their contacts with the Kodiak bears, but from the people of Alaska as a whole, for the big-game animals of Alaska attract to the Territory many people from the States and other countries, and their expenditures for equipment, travel, personal services, etc., constitute what is by no means an inconsiderable contribution to the commerce of the Territory.

Makes Short Trip in East.--W. R. Dillon spent February 4, 5, and 6 in New York City and Wilmington, Del., in connection with matters relating to the administration of the migratory-bird treaty act.

Appointed Game Protector.--Lawrence J. Mrovka, of Collinsville, Ill., was appointed to the position of U. S. game protector on February 11. Mr. Mrovka, who was formerly a U. S. deputy game warden, is working temporarily in Missouri and Illinois, but later will make his permanent headquarters at Memphis, Tenn.

Protectors Change Territory.--Game Protectors John Q. Holmes, of Omaha, Nebr., and B. J. Shaver, of St. Paul, Minn., have been assigned to duty outside their regular districts for a short time--Mr. Holmes in Louisiana and Alabama, and Mr. Shaver in Illinois.

Mallards Plentiful at Deer Flat Refuge.--Game Protector W. H. Ransom reported that when he visited the upper reservoir of Deer Flat Refuge in Idaho on January 20 mallards in that vicinity had been frightened by skaters to the southwest corner and were present there by the thousands, the noise of the beating of their wings sounding like the roaring of a small tornado when some skater came too near. Mr. Ransom and a companion conservatively estimated that 100,000 mallards were using the reservoir ice as a daily resting place, and stated that when the largest flocks took flight for a few minutes one could not see the opposite shore for the thick black clouds of ducks.

Sympathy is extended to Game Protector Harry Barmeier, of St. Louis, Mo., in the death of his aged father, which occurred at Quincy, Ill., about February 6,

Sympathy also is extended to Capt. and Mrs. Moody Creighton, of Washington, D. C., in the tragic death of their eight-year-old son William, which occurred on February 7. William was roller-skating home from school and, apparently not thinking of the danger, darted across the street from behind a parked automobile directly into the path of an oncoming truck. It was impossible for the driver to stop in time to avoid hitting the child and he was hurled to the street. He died on the way to the hospital. Mr. Creighton is marine pilot and engineer on the Survey's motor boat Curlew on the Potomac River.

Death of Deputy Wardens.--In the deaths of John W. Atwood, of Zanesville, Ohio, and James E. Brown, of Chicago, Ill., during the month of January, the Bureau loses two of its U. S. deputy game wardens. Mr. Atwood's death occurred on January 7 from pneumonia, and Mr. Brown died suddenly of a heart attack on January 27. The Survey extends sympathy to the relatives and friends of these wardens in their bereavement.

Protector Honored.--U. S. Game Protector M. A. Charlton, of Columbus, Ohio, was recently elected vice-president of the Columbus Federal Business Association.

Called to Washington.--Rudolph Dieffenbach, land valuation engineer of the Winona, Minn., office, was called to the Washington office in mid-February for conferences with regard to the land-acquisition work at the Upper Mississippi River Wild Life Refuge. He states that about two-thirds of the lands for the refuge, or approximately 100,000 acres, are now under the control of the Federal Government, and that it is hoped to add about 18,000 acres during the present calendar year.

To Give Radio Talk.--Mr. Denmead is scheduled to give a radio talk on "The Work of the Biological Survey" over Station WFBR, Baltimore, Md., at 7:15 p.m. on March 5, under the auspices of the Baltimore chapter of the Izaak Walton League of America.

Fined for Hunting on Reservation.--An offender charged with hunting on the Savannah River Bird Refuge was indicted by the Federal grand jury at Charleston, S. C., on January 21. Arraigned in Federal court on the same day, he entered a plea of guilty and was fined \$25.

Elk Refuge Notes.--On January 20, Protector Almer P. Nelson, of the Elk Refuge, Wyo., reported that only about 1,000 elk were on the refuge and adjoining ranches, but from the Izaak Walton League Addition to the refuge could be seen several small bands of elk on the Flat Creek Swamp and Sheep Creek foothills. They appeared to be in good condition, with forage still available on the pasture lands to supply their needs. Between January 26 and 30, Protector Nelson and Assistant State Game Commissioner Fred Deyo made an investigation as to the distribution of the elk and the snow conditions in adjacent hills. About 1,000 elk congregated south of Jackson, and the State began feeding hay to some of these animals.

About 17 inches of snow fell at the refuge during a storm that lasted from January 26 to February 5, and four days later about 30 inches of snow was on the reservation. Extremely cold weather followed, the thermometer registering 42 to 48 degrees below zero on the nights of February 6, 7, and 8. The deep snow caused a number of elk to come down into the valley, and the feeding of hay began on February 5, three feeding grounds on different parts of the refuge being established. On February 9, approximately 3,400 elk were being fed and more were coming onto the feeding grounds daily.

State Game Commissioner Bruce Nowlin of Wyoming shipped to the Elk Refuge from Lander, Wyo., recently, four pairs of Chinese pheasants. Protector Nelson is keeping these birds in the barn and will liberate them in the spring.

Presents Paper on Duck Banding.--Frank H. Rose, protector of the National Bison Range, presented a paper on "Some Conclusions Drawn from Duck Banding on the National Bison Range" before the Montana State Sportsmen's Association at Helena, Mont., on January 26. His paper was based on more than 1,800 returns from nearly 12,000 ducks, nearly all mallards, banded at the Bison Range. He showed the migration route of western Montana mallards to be from Alberta, Canada, to the southwest, Idaho, Montana, Oregon, California, Washington, and Alberta returning 95 per cent of his bands. He believes there is little mingling among the ducks of eastern and western Montana, and sees no reduction in the abundance of western Montana mallards but a wide variation in the kill from year to year, depending chiefly upon weather conditions. Mr. Rose finds that nearly all of a season's hatch of mallards disappear

within three or four years and that sportsmen obtain less than a third of the birds. This, he thinks, indicates that more consideration should be given to such factors as favorable nesting areas, protection from predatory creatures, improved food conditions in winter, and healthful surroundings at points of congestion. Mr. Rose's paper will probably be published in the February or March issue of Montana Wild Life.

Bill Affecting Land in Utah Signed by President.---The bill authorizing the exchange of lands in 14 townships in Box Elder County, Utah, to facilitate the establishment of the Bear River Migratory Bird Refuge, was signed by the President on February 15. This will permit an exchange of lands that will expedite the consolidation of considerable blocks for the refuge without cost to the Government.

Elk Available from Bison Range and Wind Cave Preserve.---The Survey is offering elk from the National Bison Range, Mont., and from the Wind Cave Game Preserve, S. Dak., to anyone who will remove them without cost to the Government. Forage on both of these preserves has become greatly depleted, and severe weather is accentuating the critical situation. Funds available for the purchase of feed for the animals are inadequate, and this step is being taken in order to reduce to the minimum or to eliminate, if possible, the necessity for winter or spring feeding of hay.

Severe Weather . . . Niobrara.---Protector Fred M. Dille, of Niobrara Reservation, Nebr., in a recent report states that during the latter part of January the coldest weather in his memory was experienced in the vicinity of that reservation. For more than two weeks the thermometer did not register higher than zero, even in the middle of the day, and at nights the temperature was much lower. On January 25 it was 26 degrees below zero.

Nongame Birds Scarce at Conconully.---Warden Chas. M. Conger of Conconully Bird Reservation, Wash., reports that nongame birds are scarcer at that place than in previous winters.

Returned to Duty.---L. L. Bryan, protector of the Big Lake Bird Reservation, Ark., has returned to duty after an illness of over a month's duration. He reports high water and considerable ice on the refuge.

Sullys Hill Notes.---During January a female buffalo calf of 1928 was shipped to Blue Grass, N. Dak., to an individual who is starting a herd. A two-year-old female elk was shipped to the State Fair Grounds at Springfield, Ill., and five young wild Canada geese were sent to the Upper Mississippi Wild Life Refuge.

Importations.---Several large shipments of Hungarian partridges were imported during the month, the total number for which permits were issued being approximately 10,000. About two-thirds of these birds were consigned to the Department of Conservation at Albany, N. Y., and the rest to various individuals.

The season for the importation of quail from Mexico opened on February 15, and arrangements have been made with the inspectors of the Bureau of Animal Industry on the border to issue permits at the time the birds are examined. Concessions have been granted by the Mexican authorities this season for the export of 137,000 quail to be entered at the three ports of Brownsville, Laredo, and Eagle Pass, Tex.

Treaty-Act Cases Terminated--Reports Received During January

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Clarkson	1	Texas	Killing a willet	\$10
"	2	"	Killing ducks after sunset	\$25 each
Hoffman, Holland*, Pertuit**, St. Germain**	1	Louisiana	Selling wild ducks	\$100 and costs; 30 days in jail
Holland*, Nugier**	4	"	Hunting and attempting to kill mourning doves after sunset	\$5 each and costs
Mushbach	4	Montana	Killing ducks from an airplane	\$10 each
Perry	2	Mississippi	Hunting ducks after sunset	\$50 each and costs
Perry, Fontaine**	2	"	Killing robins	\$25 each and costs
Whitehead, Hutson*, Martin**	1	South Carolina	Shooting a wood duck	\$25

Cases Reported for Prosecution

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Britton	2	New Mexico	Killing a swan
Creighton*, Cooke*	1	Maryland	Shooting ducks from a motor boat
Forbes	1	North Carolina	Killing a swan
Hawley*	2	South Dakota	Hunting and killing geese from an air- plane
Holland*, Foolkes**	1	Louisiana	Selling ducks
Kelsey, Park**	5	Florida	Killing and possessing mourning doves in close season
Kingman***	3	Texas	Hunting geese from an airplane
Mushbach	4	Montana	Killing ducks from an airplane
Roahen	11	Illinois	Possessing ducks in storage in close season
"	1	"	Hunting ducks after sunset
"	1	Iowa	Killing ducks from a motor boat
Shaver, Rogalla*	1	Wisconsin	Offering for sale and selling ducks
Stadlmeir, Pierce*, Waddington**	1	New Jersey	Hunting ducks after sunset
Tonkin	2	California	Hunting and killing ducks and geese after sunset
"	1	"	Hunting ducks after sunset

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

*** Cooperator.

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Washington, D. C., March 30, 1929

No. 3

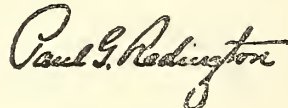
GREETINGS TO AND FROM SECRETARY HYDE

March 7, 1929

Dear Mr. Secretary:

I desire at the start of your administration of the affairs of the Department of Agriculture to add my congratulations to the many others which you have received, and to assure you that you will have the loyal support of the members of the Biological Survey.

Respectfully,



Hon. Arthur M. Hyde,
Secretary of Agriculture.

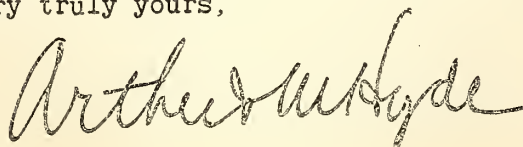
Chief.

March 11, 1929

Dear Mr. Redington:

Thank you very much for your note of March 7. As I start out in this position, it is reassuring to know that I may count upon the cooperation and support of the members of the Department. Please convey to your staff in the Biological Survey my appreciation of their message.

Very truly yours,



Hon. Paul G. Redington,
Chief, Bureau of Biological Survey,
Washington, D. C.

GENERAL NOTES

Chief Inspects Game Preserves.---Mr. Redington and Mr. McAtee returned late in March from a ten days' sojourn in southern Georgia and northern Florida, the purpose of the trip being primarily to view with H. L. Stoddard, stationed at Thomasville, Ga., the results recorded by the latter's work in the study of quail conditions on southern game preserves. For five years a group of prominent men have contributed more than \$10,000 for a thorough study by the Survey of the quail, its habits, migrations, diseases, propagation, enemies, etc. Opportunity was afforded Mr. Redington and Mr. McAtee to travel extensively over the territory to see the application by owners of the game preserves of ideas developed by Mr. Stoddard, who is in charge of the work. Commenting on his observations, Mr. Redington said:

"Naturally, the primary object of the cooperators in financing this study was to increase the supply of quail so that better hunting might be obtained. This, however, has not been the only accomplishment. Over a wide area where the use of fire is necessary in getting rid of the rank vegetation, which is not suitable for quail, the method used in permitting fire to run only under close control should be of great value throughout the entire pine region. An age-old custom of "woods burning" has been practiced by landowners of the general pine region similar to that found around Thomasville. Largely no control of such fires has obtained, and a great deal of damage has been done to the woods, to the soil, and to the wild life. The practice of these owners in the controlled use of fire will, it is believed, constitute a precedent for work elsewhere in the South where fire has to be used for beneficial development.

"Another important consideration resulting from the study is the fact that, through the use of methods developed by Mr. Stoddard for establishing proper habitat for quail, an additional definite value to the land has been established by reason of the presence of the birds there. In other words, if a farmer should adopt and successfully use on his lands the methods outlined by Mr. Stoddard, he might, through the leasing of hunting rights, secure an additional income up to 15 cents an acre.

"Still another feature has to do with the betterment of social conditions throughout the South. The individuals who have established the game preserves either own or lease the lands for the purpose, and in either event by such control they are establishing higher standards of living for both the white and the colored people of the region, assuring definite employment for the people of the neighborhood on projects connected with the development of game preserves, and in many cases furnishing up-to-date houses, with adequate sanitation facilities to the employees or tenants of the preserves."

After the Thomasville trip, Mr. Redington and Mr. McAtee went to Brunswick, on the southeastern coast of Georgia, and were the guests for four days of Howard E. Coffin, who has a fine estate on Sapelo Island and owns much of the territory on the islands and marshes in close proximity to Sapelo. "A great opportunity was given here," said Mr. Redington, "to see what not only Mr. Coffin but other owners of game preserves on adjacent islands are doing in the propagation and protection of the fauna and the preservation of the flora. Quail, pheasants, turkeys, waterfowl, and deer are either being propagated or amply protected, and many of the islands are, so far as possible, being maintained in unmodified primitive

condition. Here, as in the Thomasville region, not only are the owners of the properties benefiting through the work that they are doing to assure themselves of continued sport and a most pleasant environment, but they are contributing to the uplift of social conditions throughout the territory and constitute a powerful agency for better law enforcement in the region. The estates owned by individuals off the coast of southeastern Georgia are rich in history, many of them dating back as developed plantations to the early colonial period. As one travels throughout the region the ruins of the old plantation homes and slave quarters are constantly encountered.

"On Blackbeard Island, Ga., one of the bird refuges of the Biological Survey, which we inspected over its whole length, some of the chachalacas introduced a few years ago from Mexico were seen, as well as numerous deer. The island is evidently a good sanctuary for all sorts of small birds. On outlying marshes clapper rails and other species were noted.

"On this trip it was possible to see rookeries of American egrets, blue herons, ibises, also many species of waterfowl, bald eagles, and a large number of song and insectivorous birds."

A stop was made at Savannah, Ga., where, with U. S. Game Protector E. B. Whitehead, Mr. Redington had an opportunity to view the Savannah River Bird Refuge, which is maintained by the Biological Survey on Savannah River northwest of the city.

Donations to Zoo Listed.--Among the donations to the National Zoological Park listed in the annual report of the director, Dr. William M. Mann, for the year ended June 30, 1928, are the following: Bald eagle, donated by President Coolidge; young Kodiak bear, by Paul G. Redington; albino coyote, by Stanley G. Jewett, Portland, Oreg.; puma, Bailey's lynx, and Berlandier's tortoise, by M. E. Musgrave, Phoenix, Ariz.

Coolidge Compares Presidential and Bird Refuge Bills.--Among the last-minute bills signed by President Coolidge on the morning of March 4 was one appropriating \$48,000 for the rehabilitation of Mount Weather, Va., for a summer White House. The following comment on the bill was sent to the St. Louis Post-Dispatch by Mr. Coolidge:

"A bill appropriating \$48,000 to improve Mount Weather for a Presidential refuge is just being signed by me. I congratulate you on the success of the campaign first broached in your newspaper and almost unanimously approved by the press. The Congress has shown an inclination to treat a President with the same kind of consideration it extends to our birds and other wild life."

Death of Edward H. Forbush.--News of the death of Edward Howe Forbush, State ornithologist of Massachusetts, was received with deep regret by his many friends in the Biological Survey. Mr. Forbush passed away on March 8, 1929, at his home in Westboro, Mass., in his 71st year. He had served as State ornithologist of Massachusetts for nearly 20 years, retiring from that office to private life about a year ago. During the month of June, 1910, Mr. Forbush was employed by the Survey to investigate the starling situation, the only time he was officially connected with the Bureau. He had been a member of the Advisory Board, Migratory-Bird Treaty Act, however, since it was first established, in September, 1918. His writings include extensive works on economic ornithology, life-histories of game birds, and probably his greatest work, "Birds of Massachusetts and Other New England States," two of three volumes of which have been issued.

Survey Represented on South Seas Expedition.--Dr. A. K. Fisher has been detailed to the Division of Biological Investigations to represent the Bureau as field naturalist on the Pinchot South Seas Expedition, scheduled to leave Brooklyn, N. Y., on the schooner-yacht Mary P. on March 28. It is planned to make zoological collections on Swan Island and Grand Cayman in the Caribbean Sea, and possibly on some of the other smaller islands, before passing through the Panama Canal. From Balboa the route will extend to the Galapagos Islands, the Marquesas, and thence to Tahiti and the neighboring islands. Collections of both marine and terrestrial life will be made, and will include land and water birds and other forms. The specimens obtained will be deposited in the United States National Museum, with duplicates, when available, in the Biological Survey. The expedition is under the auspices of Hon. Gifford Pinchot and in cooperation with the U. S. National Museum and the Biological Survey, and will probably extend through the greater part of the year. Doctor Fisher's son, Prof. Walter K. Fisher, zoologist of Stanford University and director of the Hopkins Marine Station, Pacific Grove, Calif., formerly special field naturalist of the Survey; and Howard H. Cleaves, pioneer in bird banding, are also members of the expedition. Mail for Doctor Fisher can be addressed to him at the Tivoli Hotel, Balboa, C. Z., until May 1; and until July 15 care of U. S. Consul, Papeete, Tahiti.

Vermont in the World War is the title of a comprehensive book recently published by the State of Vermont under the authorship of Harold P. Sheldon, U. S. Game Conservation Officer of the Biological Survey, and military historian of the State of Vermont. The editor in his preface to the book says of the author that he "was engaged as Military Historian, the Commission having in mind the selection of one who had served with the colors overseas. Their choice was a most excellent one and Captain Sheldon has performed a difficult task with great credit to himself and the State. Having a thorough knowledge of military terminology and wielding a facile pen, he has told the story of Vermonters overseas in a graphic and fascinating style rarely possessed by one trained in the military service." During the World War the author served in France as first lieutenant in the 102d Machine Gun Battalion, and was later made captain; after his return from overseas he was promoted further, and later was commissioned lieutenant-colonel in the Reserve Corps.

Booklet on Survey's Work in Wyoming Published.--"Wild Life Conservation and Control in Wyoming under the Leadership of the United States Biological Survey," a 32-page booklet by Albert M. Day, leader of predatory-animal and rodent control in Wyoming, and Almer P. Nelson, reservation protector in charge of the Elk Refuge, Jackson Hole, Wyo., has recently been published by the Wyoming State Game and Fish Department, the State Extension Service, and the State Department of Agriculture, in cooperation with the Biological Survey. The bulletin is well illustrated and covers the following subjects: Predatory-animal control; Rodent control; Magpie control; and Conservation of Wyoming elk. It contains also several statistical tables of expenditures, animals taken, counts of elk, etc., and a bibliography of Wyoming wild-life conservation and control. Copies may be obtained through the office of the Biological Survey at Cheyenne, Wyo. (Post Office Building).

Monograph on Biological Survey Published.--One of the latest contributions in the series of Monographs of the United States Government, issued by the Institute for Government Research of the Brookings Institution, Washington, D. C., is a treatise on the Bureau of Biological Survey. The author, Mr. Jenks Cameron, a research investigator of the Institute, traces the history of the Survey from its establishment as a Section of Economic Ornithology on July 1, 1885, as the Division of Economic Ornithology and Mammalogy one year later, as the Division of Biological Survey in 1896, and as the Bureau of Biological Survey in 1905, to the close of the fiscal year 1928.

The work of the Bureau is fully covered by Mr. Camēron without criticisms or recommendations. The 339 pages of his monograph present the information in a most readable form, and it will be found both valuable as a reference work and interesting to those who wish to study the history, activities, and organization of the Bureau. The list of publications of the Biological Survey, including its life-zone maps, issued from 1885 to 1928, occupies 36 pages.

Mr. Cameron consulted freely with members of the Bureau during the course of the preparation of his monograph, and was given every facility to make his work accurate and comprehensive. The finished product evidences the fact that he has most carefully availed himself of all sources of information to make his contribution a monograph in the broad sense.

Duplicate Copies of Publications.--U. S. Game Protector Webster H. Ransom, of Spokane, Wash., in returning several duplicate copies of old publications issued by the Survey, has made the suggestion that other field leaders may have duplicate copies that may be needed by field employees to complete their files. This is a good suggestion. If field men having duplicate copies of earlier issues of Bureau publications will forward them to the Survey in Washington, they will be available for use in filling such requests as may be made to fill gaps in the files of men who try to maintain complete sets of circulars and bulletins of the Survey.

Addresses Forestry Association; Gives Radio Talk.--Mr. Henderson gave an address on "The Relationship of Birds and Animals to Forestry" at a meeting of the Maryland Forestry Association at Baltimore, Md., on March 19.

In the absence of Mr. Redington, who was detained in the South by bad weather, Mr. Henderson presented the radio talk on "New Refuges under the Migratory-Bird Conservation Act" over the noon network broadcast of the Department on March 19.

Radio Talks for April.--Biological Survey talks in the Department's radio program for the month of April are scheduled as follows:

The Crow.....	April 2
Moles.....	April 4

The Baird Ornithological Club held its seventh annual meeting on March 21, 1929, at the residence of Dr. H. H. T. Jackson, in Chevy Chase, Md., and elected officers for the ensuing year as follows: President, Dr. Alexander Wetmore; Vice President, E. R. Kalmbach; Secretary, Frederick C. Lincoln; Councilors, Dr. C. W. Richmond and Dr. T. S. Palmer. After a series of short notes contributed by members, Dr. Wm. M. Mann, director of the National Zoological Park, gave an account of the bird collections in his care, adding many experiences of his own with animals in the wild. He noted that 700 species have been exhibited in the national collection, and dealt with the success attained in acclimatizing representatives of the different groups for show purposes.

Official Publications.--The following official publications of the Bureau were issued during the month:

"Reduction of Warble and Nose Grubs in Reindeer." Mimeographed leaflet Bi-1012, 2p. Received March 15.

"Acquisition of Land by Purchase, Gift, or Lease under the Migratory-Bird Conservation Act of February 18, 1929." Mimeographed leaflet Bi-1018, 3 p. + copy of printed act (Public No. 770 -- 70th Cong.). Received March 20.

"Lungworm Trouble in Foxes--Its Treatment and Control," by Dr. Karl B. Hanson. Mimeographed leaflet Bi-1010, 5 p. Received March 26.

Outside Publications.--The following articles by members of the Bureau appearing in outside publications have been reported during the month:

Cooke, May Thacher. Birds of the Washington, D. C., Region. Proceedings Biological Society of Washington, vol. 42, p. 1-80. March 25, 1929.

Couch, Leo K. Spring Food Habits of Yakima Valley Hawks. The Murrelet, vol. 10, no. 1, p. 10-11. January, 1929.

Day, Albert M., and Nelson, Almer P. Wild Life Conservation and Control in Wyoming under the Leadership of the United States Biological Survey, 32 p., illus. Published by the Wyoming State Game and Fish Department, the State Extension Service, and the State Department of Agriculture, in cooperation with the Bureau of Biological Survey.

Earnshaw, Frank L. Vermin Versus Game. Field and Stream, vol. 33, no. 11, p. 88-89. March, 1929.

----- Hunting and Fishing Rights on Navigable Waters. Field and Stream, vol. 33, no. 12, p. 74-76. April, 1929.

Gabrielson, Ira N. Rainbows of the Purple Sage. Forest and Stream, vol. 99, no. 3, p. 172-173, 207, illus. March, 1929.

----- In Defense of Sea Gulls. World Traveler, vol. 21, p. 32, 52, 54, illus. March, 1929.

Green, R. G., Ziegler, N. R., Dewey, E. T., and Shillinger, J. E. Experimental Transmission of Epizootic Encephalitis of Foxes. Journal of Bacteriology, vol. 17, no. 1, p. 54-55. January, 1929.

Green, R. G., and Shillinger, J. E. Results of Research on Diseases of Fur-bearing Animals in Captivity. Journal of the American Veterinary Medical Association, vol. 74, no. 3, p. 277-282. February, 1929.

Howell, Arthur H. Description of a New Red Squirrel from North Carolina. Journal of Mammalogy, vol. 10, no. 1, p. 75-76. February, 1929.

Jewett, S. G. Thomomys bottae laticeps in Oregon. Journal of Mammalogy, vol. 10, no. 1, p. 80-81. February, 1929.

McAtee, W. L. Stability in Nomenclature; A Two-word Code of Nomenclature. Proceedings of the Entomological Society of Washington, vol. 30, p. 151-152 and 150-151, respectively. November, 1928.

Madsen, David H. The Tragedy of Western Waterfowl. Field and Stream, vol. 33, no. 12, p. 30-31, 108-110, illus. April, 1929.

----- The Bear River Migratory Bird Refuge: Its Achievements and Expectations. In Report of Montana Game Commission, 1929.

Mills, Ernest M. Moles in Lawns and Gardens. New England Homestead, vol. 98, no. 11, p. 9, illus. March 16, 1929.

Moore, A. W. Extra-uterine Pregnancy in *Peromyscus*. Journal of Mammalogy, vol. 10, no. 1, p. 81. February, 1929.

Musgrave, M. E. Some Habits of Arizona Mountain Lions. Arizona Wild Life, vol. 1, no. 2, p. 2-3, 25, illus. January, 1929.

Oderkirk, G. C. Two Good Poisons for Rats. Southern Agriculturist, vol. 59, no. 6, p. 20, illus. March 15, 1929.

Preble, Edward A. The Flower-pot Bird House. Nature Magazine, vol. 13, p. 183, illus. March, 1929.

----- The Sportsman and the Woodcock. Maryland Conservationist, vol. 6, no. 1, p. 13. Winter Issue, 1929.

Redington, Paul G. Profits from Wild Life in Forests. Game Breeder, vol. 33, no. 2, p. 39, 51. February, 1929.

Sheldon, H. P. Bog-trotting in Maryland. Maryland Conservationist, vol. 6, no. 1, p. 14-17. Winter Issue, 1929.

----- The Big Guns. Field and Stream, vol. 33, no. 12, p. 127-129, illus. April, 1929.

[Miller, Loye,] Taylor, Walter P., [and Swarth, H. S.]. Some Winter Birds at Tucson, Arizona. The Condor, vol. 31, no. 2, p. 76-77. March-April, 1929.

BIOLOGICAL INVESTIGATIONS

Murie Returns to West.---O. J. Murie, who has been at the Washington headquarters since late in December, left on March 18 for the West. He expected to make a brief visit at his home at Moorhead, Minn., and to spend a day or two at other points looking up matters in connection with his work, and then proceed to Jackson, Wyo., to resume his studies of the life history of the elk and other wild life of the region.

Deer Situation in Pennsylvania.---Vernon Bailey has recently returned from a study of the deer situation in Clearfield County, Pa., where last year's fawns were reported to be dying in considerable numbers. The loss was found less serious than that of last year on the same ground but due to the same cause--starvation. Only last year's fawns had died, and of these, seventeen examined were found to be emaciated but with no evidences of disease. Their stomachs were generally well filled with twigs, buds, and leaves, but from plants that afford little or no nutriment. The winter range of these deer was still somewhat overcrowded, and the adults had eaten all the available forage and browse to a height that the fawns could not reach, and starvation during the deep snow of winter was inevitable. A further reduction in the number of deer in this part of the State during the next hunting season should prevent similar losses next year, but it will require several years for the range to reproduce a good stand of deer food from the growing shrubs and trees on which these animals browse in winter.

Waterfowl Counts on Potomac.---Owing to the ice on the Potomac River and to other unfavorable conditions, the February waterfowl census was not taken until February 23. At this time the number of waterfowl proved to be less than at any previous time during the winter, only about 16,000 ducks being observed. On this occasion, however, 81 whistling swans and about 150 Canada geese were noted in the neighborhood of Widewater. The most abundant duck was the canvasback, which was, however, greatly reduced in numbers as compared with previous months. The two species of ducks next most abundant were the lesser scaup and the black duck. Another census was taken on March 9, when the number of waterfowl had increased considerably over those present on February 23, about 34,000 being noted. Of these the lesser scaup duck comprised almost two-thirds, and the black duck and canvasback 5,500 and 5,200, respectively. The baldpate was unusually numerous, about 1,100 being reported. About 300 Canada geese were seen, but no whistling swans. In all, thirteen species of ducks were observed, including one old-squaw.

Condition of Buffalo in Alaska.--L. J. Palmer writes that up to about mid-February the 19 head of buffalo liberated late last autumn near McCarty, Alaska, were doing well. At that time they were on Clearwater Creek and were reported as being in fine shape, having had the benefit of a fine stand of wild vetch. The four buffalo retained at the Reindeer Experiment Station at Fairbanks are in excellent condition and are being fed hay.

Talk Before Biological Society.--Doctor Bell, at the meeting of the Biological Society of Washington on the evening of March 9, led a discussion on "Present Needs in Biological Research," and F. C. Lincoln gave an illustrated talk on "Some Causes of Bird Mortality."

FOOD HABITS RESEARCH

Investigates Damage to Fruit by Birds.--During the first part of February, Theo. H. Scheffer made a brief investigation of conditions in fruit-raising sections of California, where in recent years increased damage by birds has been reported. The center of most of this trouble has been in Merced County. The report Mr. Scheffer has submitted will serve as a basis for further investigation of the problem during the coming season.

FUR RESOURCES

Visit Muskrat Marshes.--Mr. Ashbrook and Dr. J. E. Shillinger visited muskrat marshes on the eastern shore of Maryland, on March 9, 10, and 11, to investigate conditions and to inspect the operation of a new live-muskrat trap. They report that the trap is successful in trapping muskrats alive and is a great improvement over the old one. The inventor stated that during the 15 years he had been trapping muskrats he had obtained an average of 2,200 trapped animals annually from approximately 450 acres of marshland.

Rabbit Diseases to be Studied.--John W. Meyer, acting director of the Rabbit Experiment Station, at Fontana, Calif., reports that a program has been arranged with Dr. John F. Kessel, parasitologist of the University of California, in which Doctor Kessel will co-operate in research work relative to rabbit diseases, especially coccidiosis.

ECONOMIC INVESTIGATIONS

Speaks at Izaak Walton League Banquet.--Mr. Young, on the evening of March 7, gave an illustrated talk on "United States Control of Predatory Animals" at Frederick, Md., at the annual banquet-meeting of the local chapter of the Izaak Walton League of America held at the Francis Scott Key Hotel. Other speakers included the Hon. David C. Winebrenner, secretary of State of Maryland; E. Lee LeCompte, Maryland State game warden; and Swepson Earle, Maryland State conservation commissioner.

Misfortune Befalls Predatory-Animal Hunters.--It is with deep regret that the sudden and untimely death is recorded of Hunter Ormus A. Tolman at the Mills Memorial Hospital, San Mateo, Calif. Mr. Tolman, while working his trap line in the vicinity of Half Moon Bay, stepped in a hole or ditch, falling heavily upon his chest. He was evidently injured internally, and the following day developed pneumonia, and died on March 2. He was recently transferred to the California district from the Idaho district, where he had worked for Mr. Goldman for some time. Mr. Tolman was a conscientious and efficient worker, and was well liked by all. He leaves a widow, to whom our sympathies are extended.

Hunter R. W. Cheney, of Amador County, Calif., recently was unfortunate enough to have two fingers shot off, but he is now improving.

Injured Hunter Cheats Death in Mountain Snow.--The following account is taken from the Seattle Daily Times of February 2:

"Aberdeen, Saturday, Feb. 1.--Ignar Olson, government predatory-animal hunter and veteran Olympian guide, is safe at his Quinault ranch after cheating death in a near woods-tragedy and a twenty-one-mile battle against the blizzard which raked the Olympics early this week.

"Hard on the trail of a cougar, Olson was injured when the top of a tree cracked beneath its burden of snow and ice and plunged on him near the twenty-mile post on the East Fork Trail, carrying him more than two hundred feet down a steep hillside. The hunter was knocked unconscious for a few minutes, but roused himself from the snow to find that he had suffered a wrenched back, a dislocated shoulder, and severe bruises about the knees.

"The accident occurred late in the afternoon, and realizing that he could never make the O'Neil Creek Cabin six miles below, he struggled on to a ranger's cabin at the twenty-one-mile post, where he found wood but no blankets. He fed a fire throughout the night while a blizzard raged outside, and in the morning started back through more than two feet of fresh snow.

"The first day on the return trail he won his way through the storm to O'Neil Creek, where food, blankets, and shelter awaited in a trapper's cabin. The following day carried him to Graves Creek, where, suffering from his injuries and exposure, he rested a full day, moving about only to obtain food and replenish the fire. On the fifth day on the trail Olson reached the Lindahl ranch, in the Quinault district, where he telephoned to his family, which had almost despaired of his safety, and was taken by automobile to his own home.

"Asked via telephone to-day as to his condition, he declared that aside from being stiff and sore he was none the worse for his experience, but added, with a chuckle, that the "cougar'll have nothing to worry about from me for a couple of weeks."

Plan to Bar Keeping Coyotes in Captivity Except in Zoos.--The Bureau is advised that the House Committee on Health and Public Morals of the Oregon State Legislature favorably reported a bill that, if passed, will prevent Oregonians from keeping coyotes on their home places. It appears that much complaint has been received because of the fact that coyotes held as domestic pets frequently escape and prove a serious menace to livestock, poultry, and game. The bill, however, would not prevent the keeping of coyotes in zoological parks for exhibition purposes.

Bobcat Bounty Repealed in Nevada.--The Bureau is advised that the Nevada State Legislature recently repealed the State-wide bounty on bobcats because of fraudulent schemes connected with bounty claims.

How Much Will a Jack Rabbit Eat?--This question is of large economic importance, and experiments conducted in Arizona by Dr. W. P. Taylor, of the Division of Food Habits Research, throw some light on the problem. In these experiments the average jack rabbit consumed 0.68 pounds of green alfalfa hay a day. The Arizona Experiment Station says that the average 120-pound ewe sheep consumes 8 pounds of green feed a day. On this basis, 11.8 jack rabbits eat as much green forage in a day as a sheep. A 750-pound cow eats about 40 pounds of green feed in a day, and 58.8 jack rabbits, taken together, eat as much as the cow does. In the experiments dry feed (alfalfa hay) also was fed to the rabbits. It was found that 14.2 jack rabbits eat as much dry feed as the average 120-pound ewe sheep, and 71.4 eat as much dry feed as does the average 750-pound cow.

Cross-Breeding Wolves and Coyotes with Domestic Dogs.--R. E. Bateman, leader of predatory-animal control in the Montana district, reports a series of interesting experiments in crossing wolves with dogs. He has successfully crossed a female wolf with a pure-bred greyhound, and also with a pure-bred police dog. His experiments in crossing dogs with coyotes were conducted with a female dog, which is half coyote and half fox hound. This female was sired by a coyote, the dam being a pure-bred Missouri fox hound. The female, half coyote and half dog, has also been bred to a Walker fox hound. This latter crossing produced a litter of pups that Mr. Bateman reports as showing every tendency to be full of hunt and to have the making of good trailing dogs. He also reports that the female adult half coyote and half fox hound, with which the experiments in cross breeding have been carried on, is a wonderful hunter and will run with his pack of fox hounds; and that she has an exceptionally good nose and can run as cold a trail as the fox hounds, if not a colder one. Her nose is sharp, resembling the coyote, and her heavy coat of hair is yellow and white. She has a very bushy tail.

Rabies Still Found in Washington State.--The epidemic of rabies, which has been raging in eastern Washington among coyotes and dogs, is receiving the continued attention of Dr. Glenn R. Bach, leader of predatory-animal control in this district. The head of a coyote examined at the State laboratory on March 5 proved positive for rabies. This particular coyote is reported to have bitten several dogs.

Congratulations are extended to Mr. and Mrs. John C. Gatlin, of Oklahoma City, Okla., on the birth of a daughter on February 28. Mr. Gatlin is leader of predatory-animal control in the Oklahoma-Arkansas district. The new arrival seems to have so "pepped" him up that he is obtaining excellent results in wolf control in his district.

Wolf Control Aiding Farmers in Oklahoma-Arkansas District.--Mr. Gatlin reports that a 90-pound black male wolf, which stood 31 inches high at the shoulders, has been taken in Yell County, Ark. Also, hog raisers in southeastern Arkansas, where Hunter Andy Ray, Jr., has been working, report a fine pig crop since the wolves have been brought under partial control. Before trapping operations were started in this locality the residents had practically no pig crop. At the present time 1,500 head of brood sows are on this range, and the stockmen are well pleased with the cooperative work that has been going on. Another timber wolf is reported as having been taken by Hunter S. J. Nolen in eastern Pittsburg County, Okla. This wolf had received the sobriquet of "Old Missouri Black." Farmers in this county reported the loss during recent months of approximately 95 hogs, 170 chickens, 20 turkeys, and 1 calf, through predatory animals.

Rabbit-Fur Market Big Help in Cooperative Campaigns.--Leo K. Couch, leader of rodent control in Washington State, reports that many persons are following jack-rabbit poison lines to pick up the dead animals and that a considerable number are carrying on poisoning operations to obtain jack-rabbit skins. He tells of four men in Washington marketing over 7,000 pelts, which brought an average of \$8 a day for each man. Two men following a rabbit drive picked up skins that sold for \$70.

Similar reports have been made by Ira N. Gabrielson, leader of rodent control in the Oregon district. For instance, the county agent of Malheur County reports that at least 30,000 rabbit skins have been marketed from that county. Mr. Gabrielson estimates that close to 100,000 rabbit skins have been marketed from his district during the past season.

Rat Campaign in Greensboro, N. C.--C. D. Schwartz, of the eastern rodent control district, recently completed a successful campaign against rats in the city of Greensboro, N. C., conducted in cooperation with the city health department. Two sanitary inspectors, under the supervision of Mr. Schwartz, treated 155 separate premises, and 100 per cent clean-up of rats was obtained in practically every instance. Powdered red squill was the poison used, mixed with ground fresh fish (king mackerel), chopped beef, and a cereal mixture consisting of oatmeal, cornmeal, and graham flour, moistened with milk. All was mixed in the well-known ratio of 16 to 1--16 parts bait to 1 of squill. In every case prebaiting with unpoisoned baits was practiced. More than 11,000 baits were exposed, of which 71 per cent were taken. As thirteen blocks in the business area were cleaned up, it is believed that some time will elapse before rats are likely again to reinfest the city. A total of 77 rats were recovered from the basement of one drug store.

Survey's Predatory-Animal Work Depicted in Verse.--The following, quoted from a recent issue of the California Wool Grower (March 5, 1929), would indicate that predatory-animal control work is not always prosaic:

S. O. S. (Save Our Sheep)

Before old Sol hits the trail of a mornin',
You're jerked from the hay by the coyote's warnin'.
Your old blood boils at his sassy yap,
And you pray the devil has sprung a trap.

His tummy is bulgin' with a royal feast,
He's sucked from the throat of some poor beast,
For he cares not whether it's lamb or calf,
It makes him give that devilish laugh.

Then git the old trusty and let her crack,
Just trustin' to luck you bust his back.
If you nail him square he's past all harm,
He's made his last raid on your old farm.

If you can't get the critter in any other way,
Then S.O.S. the Biological Survey.
They'll set a trap, or a pill will roll;
And I'll tell the world that's Coyote Control.

GAME AND BIRD CONSERVATION

Addresses Game Association.--Talbot Denmead attended the annual meeting of the Randallstown Game and Fish Protective Association at Randallstown, Md., on the evening of March 7, and addressed a large gathering on the subject of the relation of birds to the farmer.

Wild Ducks Fed in Washington State.--Game Protector Webster H. Ransom, of Spokane, Wash., advised on February 18 that the long-continued cold weather, combined with a fall of snow that covered the wheat-growing region to the east of the unfrozen Dragoon Springs located on a ranch near Lamont, Wash., made food conditions critical for a while for the

mallards wintering on the springs and feeding on the wheat stubble fields. On February 17, Mr. Ransom, accompanied by Spokane, Lincoln, and Adams County game wardens and a couple of sportsmen, drove to the springs. The county wardens procured 600 pounds of wheat, and also had a truck well loaded with bundled wheat hay and various kinds of grain for food for the ducks. On arrival at the springs they found evidence of a large number of ducks frequenting the place. The wardens put out all the food, nearly a ton altogether, along the margins and in the shallow waters of the springs where it could be easily found by the birds. Along the creek below the springs not more than 25 dead birds were found. During the day there were no ducks at the springs, they being in the snow-covered wheat stubble fields trying to find food, but as the men were leaving they began to return. Many of the incoming birds seemed thin and apparently were flying with much effort. They were still wild, however, and most of them alighted in the small creek below the springs. Mr. Ransom estimated that they saw about 5,000 birds, mostly mallards, but a few scattered blue-bills, redheads, and pintails. One of the county wardens, who had visited the springs a short time before, stated that about twice that number had frequented the place this winter. While some of the dead ducks picked up in the region of the springs were considerably emaciated, the deaths were not all due solely to starvation, as shot wounds received during the hunting season may have been contributing factors in some cases, Mr. Ransom thinks. At the time he wrote the Survey, the wind had blown off quite a little snow in places on the wheat-growing lands, and the sun had thawed out and melted the snow on exposed slopes, making it possible for the ducks to get food on the ground at such places. The game commissions of Adams, Lincoln, Spokane, and Whitman Counties were doing all they could jointly to help the suffering ducks at the springs, and with the grain already placed there and more to be put out, Mr. Ransom believed the situation would improve at once.

Airplane Hunters Taken.---Recently 10 new cases involving the hunting of migratory waterfowl from an airplane in violation of the migratory-bird treaty act regulations were submitted for prosecution. One of the cases was from Massachusetts, 4 were from Montana, 2 from South Dakota, and 3 from Texas. This brings the total of such cases submitted since the passage of the treaty act to 32. The 4 Montana cases have been successfully prosecuted and the offenders fined, and the previous 22 cases had already been disposed of, so that only 6 cases involving this means of illegal hunting still require action by Federal court.

Nineteen Violators Prosecuted in Oklahoma.---Protector Geo. M. Riddick, of Little Rock, Ark., while on a recent trip to Oklahoma assisted State game rangers in obtaining information against 19 persons involving the killing, trapping, and possessing of ducks during close season. All the offenders were successfully prosecuted in State court, and fines aggregating \$682.50 and costs totaling \$162.45 were imposed.

Pays \$1,000 for Selling Pheasants.---Evidence recently obtained by Protector P. S. Farnham, of Owego, N. Y., in conjunction with New York State game protectors, resulted in the prosecution of a fish and oyster dealer for purchasing and possessing dead bodies of pheasants for sale. The case was terminated by the defendant paying \$1,000 under a civil compromise.

Heavy Fines for Violators in New England.---In cooperation with State officials of Maine and New Hampshire, Protector E. E. Smith, of Portland, Maine, has been able to discover a number of violations affecting illegal trapping and dealing in beaver skins. Fifteen persons prosecuted in State court in New Hampshire paid fines totaling \$1,616.80, while in Maine five offenders paid fines and costs amounting to \$1,328.30. One of the Maine defendants was fined \$800 and costs.

Mountain Sheep Transferred from Canada.--Fourteen mountain sheep were shipped by the superintendent of the Rocky Mountain National Park, from Banff, Alberta, Canada, to Laramie, Wyo., and Cache, Okla., on December 28, 1928. The transfer of these sheep was arranged for by the U. S. Forest Service. The Biological Survey, the City of Laramie, Wyo., the State Game and Fish Commission of Oklahoma, and citizens of Lawton, Okla., cooperated in covering costs of shipment. Seven of the sheep were delivered at Laramie, from which point five were taken by truck to the Sheep Mountain Game Preserve within the Medicine Bow National Forest, where they were liberated on an exposed rocky hillside covered with scattered yellow pines. The sheep had been in crates for so long that they were apparently somewhat stiff, but otherwise in excellent condition. One male and one female in the shipment sent to Laramie were forwarded to Cheyenne, Wyo., to be placed in the zoo park, at the expense of the Cheyenne Council of Industry. The shipment to the Wichita Game Preserve, consisting of two rams and five ewes, arrived at Cache, Okla., on January 2. Government trucks were at the depot awaiting them, and the sheep were taken to the headquarters of the Wichita National Forest. The next morning they were turned loose in a corral, inclosed by a fence 10 feet high, and though somewhat wild at first, they soon settled down and began eating hay. When the sheep become well located, it is planned to put one ram and two ewes in the exhibition pasture and turn the other four into the large buffalo pasture where there is plenty of rough land on which to range.

Disposal of Surplus Mule Deer and Elk at Bison Range.--A considerable number of surplus mule deer from the National Bison Range, Mont., are being offered for sale alive by the Survey at \$15 each as they run on the range, the purchaser to pay all expenses in connection with capture, crating, and removal, which it is estimated will not exceed, on the average, \$20 each. These deer are not recommended for stocking ranges in the South or East, particularly in areas already frequented by deer, but they should do well in most of the western part of the United States. Where these deer are intended for exhibition purposes only they would, of course, stand a fair chance of survival in the East. More requests for elk than it is possible to fill have been received at the Bison Range, but a number have already been shipped to various points. Ten deer were shipped to a purchaser at Redwood City, Calif., for his private park.

Meetings Attended.--D. H. Madsen, superintendent of the Bear River Migratory Bird Refuge, Utah, and Frank H. Rose, protector in charge of the National Bison Range, attended the annual banquet of the Western Montana Fish and Game Association at Missoula, Mont., on February 16, at which more than 500 persons were present. Mr. Madsen delivered an address at the banquet. On February 18, Mr. Rose talked to the biology class of the University of Montana, and at noon of the same day attended a meeting of the General Business Men's Association. In the evening he was present at a meeting of the Society of American Foresters.

Elk on Elk Refuge.--Latest reports received from the Elk Refuge state that on February 28 there were approximately 5,000 elk on the three feeding grounds. The majority of these, as well as those wintering on near-by foothills, were said to be in excellent condition. Up to the last of February, only 12 elk had died on the feeding grounds. Forest rangers have reported that there are still a number of elk back in the high mountains. A representative of the Fox Film Company visited the Refuge on February 12 and took moving pictures of the elk on the feeding grounds.

Niobrara Notes.--Two buffalo and one elk were disposed of as meat at Niobrara Reservation, Nebr., during February. The death of one antelope at this preserve during one of the periods of extremely cold weather leaves only 5 antelope in the band.

Sullys Hill Notes.--One elk was disposed of for meat at Sullys Hill Game Preserve, N. Dak., during February.

Following is an extract from a letter dated February 19 to Protector Wesley D. Parker, from C. A. Wilson, superintendent of parks, Minot, N. Dak., relative to a buffalo obtained from Sullys Hill Preserve in 1924, when it was four years old:

"You have no doubt read in the paper that we lost Colonel Sully, our bull buffalo which was donated to us by the Sullys Hill Preserve. This was a great loss to the parks and the city of Minot, as all of the people that knew him thought he was the finest animal that they had ever seen. We have raised four calves from him and they are very fine specimens. At the time of his death he weighed about two thousand pounds.***** The bull did not show any signs of being ill until he was down; he then died in about twenty minutes, apparently from strangulation. We called a veterinarian right away and after he made an examination he pronounced it mechanical pneumonia."

Lands Authorized to be Accepted for Columbia River Refuge.--Under a joint resolution of Congress, approved February 15, 1929, the Secretary of Agriculture was authorized to accept from the Northern Pacific Railroad Co. the donation of two small islands in the Columbia River, Wash., for inclusion within the Columbia River Refuge. The public spirit, generosity, and cooperation of the railroad company in making this donation is greatly appreciated.

Birds at the Various Refuges.--Protector George M. Benson, of Lake Malheur Bird Refuge, Oreg., reports that he is feeding many small birds about the headquarters, as the severe weather conditions have prevented them from obtaining sufficient food. On March 2, the lake was still covered with ice, except where the channel of the Blitzen River extends into it. The late Protector L. L. Bryan reported plenty of ducks, such as mallards, blue-bills, and green-winged teal, on Big Lake Bird Reservation, Ark., and more canvasbacks than have been on the refuge at this season for a long time. Since the first of the year, all the lowlands in Missouri have been flooded and the levee around one of the drainage districts adjoining the refuge has broken. Late in February more ducks were reported in Savannah River than at any time during the past winter. At Dungeness Spit Bird Refuge, Wash., ducks were quite plentiful during the middle of February but were reported in poor condition, and hundreds were frozen or starved to death during a period of very cold weather. The ducks were still on the refuge early in March but in fewer numbers than before the unusually severe period of weather. Large numbers of geese have arrived at Clear Lake Bird Refuge, Calif., but most of the lake was still covered with ice at the end of February.

New Refuge Activities Under Way.--Since the passage of the Migratory-Bird Conservation Act, the Survey has received many letters of inquiry about the purpose of the Act and suggestions for the establishment of refuges in various parts of the country. Offers have also been made to sell lands in many regions for the purpose of the Act. Up to this time, the efforts of the Survey have been directed toward replying to the communications received and to the preparation of various forms to be used in connection with the conduct of the work. Two of the most important forms from the standpoint of the field force of the Survey are: One soliciting detailed information regarding desirable refuge areas, and a proposal form on which the owner of land can describe and make price quotation on property offered for sale. These two can be procured for appropriate use or distribution by members of the Survey upon application to the Chief.

States Consent to Federal Acquisition of Refuge Areas.—It is gratifying to note the early action of Kansas and Montana, by the enactment of State legislation, in giving the consent required by Section 7 of the Migratory-Bird Conservation Act to the acquisition of lands by the Federal Government for refuge purposes under the new law. The Kansas act was approved on February 26 and the Montana law on March 1. The Solicitor of the Department has determined that existing legislation in the States of Arizona, Colorado, Connecticut, Georgia, Illinois, Iowa, Louisiana, Maine, Maryland, Michigan, Minnesota, Nevada, New Mexico, North Carolina, Ohio, Oklahoma, South Carolina, South Dakota, West Virginia, and Wyoming is sufficient for the Federal Government to proceed with the acquisition of refuge areas. State enabling legislation, however, will be necessary in all other States. In those States where legislation in harmony with the Federal act is required, a draft of a suitable measure has been prepared for consideration by the State legislatures holding sessions this year.

Levin Lain Bryan

It is with regret that the death is recorded of Levin Lain Bryan, United States reservation protector and United States deputy game warden, in charge of Big Lake Bird Refuge, Ark., which occurred at his home in Hornersville, Mo., on March 19. Death was due to apoplexy. Mr. Bryan has been connected with the Biological Survey since August 1, 1918, when he was appointed assistant warden of Big Lake Refuge. In 1923, he was placed in charge of the reservation, a position he held until his death. Mr. Bryan was a faithful and efficient employee, serving well in the administration of the refuge and in protecting its wild life. Although he had not been in good health for several months, his death was unexpected. He was born at Milford, Ellis County, Tex., on February 18, 1866. A wife and three children survive. Deepest sympathy is extended to Mrs. Bryan and her family in their loss.

Death of Deputy Wardens.—U. S. Deputy Game Warden Wilson S. Holland, of New Orleans, La., director of the law-enforcement division of the Louisiana Department of Conservation, died on March 2. During his tenure in office he was particularly active in the enforcement of the migratory-bird treaty act regulations, and as a result of his cooperation and that of the agents under his supervision many violators were apprehended and a large majority of them successfully prosecuted in Federal court in Louisiana. As the Survey has not had a regular game protector stationed in the State for several years, it necessarily has been dependent to a considerable degree on the State Department of Conservation for assistance in the enforcement of the Federal regulations. It is with deep regret that the Survey learns of Mr. Holland's death. Sympathy is extended to his widow and family in their bereavement.

In the death of Richard E. Bullock, of Little Compton, R. I., which occurred in February, the Bureau loses another of its United States deputy game wardens. The Survey extends sympathy to Mrs. Bullock and family in the loss of husband and father.

Importations.—Reports from quail inspectors on the border indicate that 42,366 birds were brought in during the first three weeks of the season. Revolutionary activities in Mexico interfered with quail importations during the week ending March 9, through cessation of railroad transportation, but the lines have been restored and importations will probably resume normal proportions. One shipment of quail, including 2,928 birds, was made through American importers to the University of Bologna, Bologna, Italy, on February 28.

Among the interesting birds imported during the month were 152 mute swans from Rotterdam, Netherlands.

Treaty-Act Cases Terminated--Reports Received During February

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Britton	2	New Mexico	Killing swans	\$35 each
Clarkson	1	Texas	Killing and possessing sand-pipers	\$5
Holland*, Brouillette**, Burns**, Gremillion**, Texada**	1	Louisiana	Possessing a wood duck	\$5
Holland*, Brouillette**, Gremillion**, Texada**	3	"	Killing night herons	\$5 each
Holland*, Brouillette**, Texada**	1	"	Killing mourning doves in close season	\$5 and costs; sentence suspended
Holmes, Hough**	1	Iowa	Hunting geese in close season and possessing grebes	\$5; committed to jail pending payment
Smith	1	Maine	Killing ducks from a motor boat	\$5
Smith, Wallace*	2	"	Hunting ducks from a motor boat	\$5 each

Treaty-Act Cases Reported for Prosecution

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Adams*, McKinney**	1	Missouri	Killing a wood duck
Barmeier	1	Illinois	Hunting ducks in close season
Barmeier, Adams*	1	Missouri	Killing a wood duck
Barmeier, Creech*	3	"	Killing ducks from a motor boat
Barmeier, Heller*	4	Kentucky	Hunting ducks from a motor boat
Barmeier, Meadows**	1	Missouri	Killing and possessing a wood duck
Birsch	1	North Carolina	Possessing ducks in storage in close season
Birsch, Steere**	1	" "	Possessing waterfowl in storage in close season
Broderick**	1	Massachusetts	Hunting geese from an airplane
Farnham, Creighton*, Capps*	2	Maryland	Hunting and killing ducks after sunset
Farnham, Paxon**, Tillman**	5	New York	Possessing ducks in storage in close season
" "	1	" "	Possessing waterfowl in storage in close season
Gieseler*	1	Illinois	Killing woodpeckers
Perry, Schroer*, Huhn**	1	Missouri	Possessing ducks in storage in close season
Roahen	2	Illinois	Killing ducks from a motor boat
"	11	"	Possessing ducks in storage in close season

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

Treaty-Act Cases Reported for Prosecution -- Continued

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Roahen	2	Illinois	Hunting ducks from a motor boat
"	1	Indiana	Possessing ducks in storage in close season
Roahen, Blackwell*	1	Illinois	Hunting ducks from a motor boat
Roahen, Scholler*	5	Indiana	Possessing ducks in storage in close season
" "	1	Illinois	Possessing ducks in storage in close season
Rogalla*	1	Minnesota	Killing a bittern
Scholler*	2	Illinois	Possessing ducks in storage in close season
"	1	"	Hunting ducks in close season
Scholler*, Jans*	1	"	Killing a woodpecker
Shaver, Rogalla*	2	Minnesota	Hunting ducks half an hour before sunrise
" "	2	"	Shooting a bittern
" "	1	"	Hunting ducks from a motor boat
Shaver, Vogel*	2	South Dakota	Selling ducks
" "	6	Minnesota	Selling ducks
" "	1	"	Hunting ducks after sunset
Stadlmeir	2	Delaware	Killing ducks from a motor boat
Stadlmeir, Pierce*, Hall**	1	New Jersey	Hunting ducks after sunset
Steele	5	Oregon	Hunting and killing ducks after sunset
"	4	California	Hunting ducks after sunset
Steele, Barnes*	3	"	Hunting ducks after sunset

Upper Mississippi Refuge Act Cases Reported for Prosecution

<u>Warden</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Lawrence*, Lange**	2	Wisconsin	Hunting ducks in closed area
Lundberg*, Berni*, Hall*	1	"	Trapping on closed area
Oldenburg*	2	Minnesota	Hunting ducks on closed area
Sauer*, Oldenburg*	1	"	Hunting and killing ducks on closed area

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

THE SURVEY

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GENERAL NOTES

New Division of Land Acquisition.—Secretary Hyde has approved Mr. Redington's recommendation that a new unit be created in the Biological Survey, effective July 1, to be known as the Division of Land Acquisition. This new activity was authorized by the Migratory-Bird Conservation Act of February 18, 1929.

The new division will be directed by Rudolph Dieffenbach, senior land valuation engineer, who has been conducting work incident to the acquisition of lands for the Upper Mississippi Refuge and elsewhere for the Survey since 1925. Mr. Dieffenbach's experience on various phases of land work has extended over a period of more than 20 years. He entered the Forest Service in 1908 and shortly thereafter was detailed to District 4 where he was engaged during the major part of the time up to 1912 in the classification of agricultural lands within national forests and on the relocating of forest boundaries. From 1912 to 1920 he was in charge of the surveys of the boundaries of lands being acquired in District 7 under the Weeks Law. From 1920 to 1925 he directed the examination and appraisal of lands being acquired by the United States under that act. In 1925 he was appointed forest valuation engineer in the Treasury Department, and after serving ten months in that capacity was transferred to the Biological Survey on work connected with the examination, appraisal, and acquisition of lands for the Upper Mississippi Refuge.

Mr. Dieffenbach was born in Westminster, Md., in 1884, and received his education in the Baltimore, Md., public schools, the Baltimore City College, and the Biltmore, N. C., Forest School, from which he received a degree of Bachelor of Forestry. In addition to having charge of the land acquisition under the Migratory-Bird Conservation Act, Mr. Dieffenbach will supervise all other land-acquisition and cadastral-survey work of the Biological Survey, including the Upper Mississippi and the Bear River Refuges.

Migratory-Bird Conservation Commission Appointed.—Secretary Hyde will be chairman of the Migratory-Bird Conservation Commission, as provided by the Migratory-Bird Conservation Act, to pass upon the purchase of lands recommended by the Biological Survey for refuges to be established under the act. The other members of the commission will be as follows: From the President's Cabinet, Secretary of Commerce Robert P. Lamont and Secretary of the Interior Dr. Ray Lyman Wilbur; from the Senate, Senator Peter Norbeck, of South Dakota, and Senator Harry B. Hawes, of Missouri; and from the House of Representatives, Ernest R. Ackerman, of New Jersey, and Sam D. McReynolds, of Tennessee.

W. T. Cox To Head Brazilian Forest Service.—The Brazilian Government, in creating a National Forest Service to perpetuate its wealth of tropical timber, has called for expert assistance, and William T. Cox, at present superintendent of the Upper Mississippi River Wild Life and Fish Refuge, will head the new Brazilian department. Mr. Cox has been with the Biological Survey since August, 1925, prior to which he had held important positions with the U. S. Forest Service, resigning as assistant forester to become State forester of Minnesota. Following this he engaged in private forestry practice until again called to the Department to become superintendent of the Upper Mississippi Refuge. He will assume his new responsibilities in the near future.

Chief Returns from Trip to Middle West.--Mr. Redington returned on April 21 from a 10-day trip that took him to Ann Arbor, Mich., where he addressed, by request, the American Society of Mammalogists on the predatory-animal work of the Survey; gave a talk before members of the faculty and students of the School of Forestry and Conservation of the University of Michigan on the relations of forests to wild life; and had conferences with the chief of the game division of the Department of Conservation of Michigan. On April 13 he visited the Jack Miner waterfowl refuge near Kingsville, Ontario, and saw more than 4,000 geese on this noted concentration ground. In company with Stanley P. Young, Mr. Redington went to Madison, Wis., and on April 17 at a conference with members of the Conservation Commission of that State furnished information concerning the predatory-animal control methods of the Survey, and learned that the bounty system does not fully operate to decrease the number of wolves and coyotes in that State, where they constitute a real menace to the wild life. On the same day Mr. Redington made an address on the work of the Survey in the Biology Building of the University of Wisconsin before a group of several hundred persons interested in wild life and the work of the Bureau. At Madison opportunity also was given Mr. Redington to talk to the members of the Madison section of the Society of American Foresters. He spent three days--April 18 to 20--in attendance at the annual meeting, in Chicago, of the Izaak Walton League of America, which he addressed on the 19th on "The Welfare of Our Migratory Wild Fowl." The previous evening he spoke on the work of the Biological Survey before the local chapter of the Izaak Walton League at Evanston, Ill., the town in which he spent his boyhood days.

Associate Chief in West.--After attending the meeting of the American Society of Mammalogists at Ann Arbor, Mich., during the second week of April, and the convention of the Izaak Walton League of America in Chicago, Ill., April 18 to 20, Mr. Henderson went to Ogden, Utah, to attend a conference on matters connected with the Bear River Migratory Bird Refuge. Details involved in the construction work there were considered and steps taken for starting this work. Besides Mr. Henderson, present at the conference were officials of the Bureau of Public Roads, David H. Madsen, superintendent of Bear River Refuge, and L. M. Winsor, irrigation engineer. Before returning to Washington, Mr. Henderson will confer with field men at Portland, Oreg., and will visit the National Bison Range, Montana.

Attend Izaak Walton League Convention.--Members of the Bureau who attended the Izaak Walton League Convention, and the International Sports Goods Show held in conjunction with it, at Chicago, Ill., April 18 to 20, were Mr. Redington, Mr. Henderson, W. R. Dillon, Stanley P. Young, Kenneth F. Roahen, of Peoria, Ill., and W. T. Cox and Robert M. Rutherford, of Winona, Minn.

Mr. Redington in his address before the convention on April 19 explained briefly the purposes of the various conservation laws administered by the Survey, including the new Migratory-Bird Conservation Act; emphasized the importance of game laws and their enforcement in wild-life protection in addition to the establishment of refuges; commended the attitude of the hunter who can see more than a mere bag limit in a day's sport; and made a plea for the "general acceptance of that attitude of mind that does not contemplate when one goes afield, primarily a killing process, but rather an appreciation of the good things that nature has donated to man for his delectation and health." "The sportsman," he said in conclusion, "must not ignore the fact that others than himself have rights and interests also in our common heritage of wild life, nor can he fail to acknowledge the debt that progressive conservation owes to that large group of American men and women who desire to perpetuate this resource for the sake of benefits not derived principally through the employment of the gun."

That the work of Federal game protectors is being appreciated more and more throughout the country was exemplified at the banquet on the 19th, when, in behalf of the Chicago chapter of the League, Protector Kenneth F. Roahen was presented with a beautiful platinum watch bearing the inscription--"Presented to Kenneth F. Roahen, who repeatedly has risked his life in resisting the lawless destruction of wild life, by the Chicago Chapter, Izaak Walton League."

At the Sports Goods Show, the Biological Survey displayed an exhibit of game birds. Mr. Dillon, who was in charge of the exhibit, reports an excellent attendance and much interest manifested in the various lines of work conducted by the Bureau.

Mammalogists Hold Annual Meeting.--The eleventh annual meeting of the American Society of Mammalogists, held in Ann Arbor, Mich., April 9 to 13, 1929, was attended by the following members of the Biological Survey: Mr. Redington, Mr. Henderson, E. A. Preble, E. A. Goldman, Dr. H. H. T. Jackson, Dr. J. E. Shillinger, Dr. T. S. Palmer, and Ernest P. Walker. Mr. Redington, in an informal talk, outlined the attitude of the Survey relative to certain of its activities, stressing the fact that in its control of injurious wild life it is not the purpose of the Bureau to exterminate any species, but rather to lessen the depredations of those inimical to man's interests in certain parts of their range. The paper was discussed by various members of the Society, including several of the Survey staff. Other papers by members of the Survey were: "The Relation of Color to Environment in Mammals," by Mr. Goldman, and "Mammals on Biological Survey Reservations," by Mr. Walker.

The entire program was broad in scope, with a tendency to lay emphasis on life history and genetics. Paleontology, adaptations, taxonomy, morphology, conservation, and game management also were featured in various papers. All members of the Survey present took an active part in the discussions. The success of the meeting depended in large measure on the facilities placed at the disposal of the Society by officers of the University of Michigan, and the gratitude of the Society was expressed in resolutions offered at the close of the sessions. The next meeting will be held in New York City.

Official Publications.--The following official publications of the Bureau have been received during the month:

"Report to the Governor of Alaska on Cooperative Predatory-Animal Investigations and Control in the Territory." Mimeographed. By R. K. Stewart, Division of Economic Investigations; 38 p., 3 pls., 2 maps. Issued March 1, 1929.

"Laws and Regulations Relating to Game, Land Fur-Bearing Animals, and Birds in Alaska (1929-30)." Alaska Game Commission Circular No. 6; 30 p., 2 maps. Issued April 2, 1929.

Radio Talk.--Mr. Redington will talk on "Bird Friends and Foes" over the noon network broadcast of the Department at 1:15 p. m., Eastern Standard Time, on May 22.

Outside-Publication Column to be Discontinued.--After this issue, it has been decided to discontinue the department in THE SURVEY listing articles by Bureau members appearing in outside publications, in view of the fact that the same information can be obtained by readers of THE SURVEY through the columns of the Official Record. It will be noted that in the past few months the information in the Official Record under the heading "Articles and Written Addresses by Department People in Outside Publications" has been segregated by bureaus, so that it seems unnecessary in THE SURVEY to consolidate once a month the information that can be read weekly in the Official Record and be preserved in such form as may be most convenient. For the benefit of those who may not have preserved the latest issues of the Official Record, the following publications reported during the past month are listed:

- Denmead, Talbott. The Linganore Bass. Outdoor America, vol. 7, no. 10, p. 71-72, illus. May, 1929.
- Fisher, A. K. In Memoriam - Harry Balch Bailey. The Auk, vol. 46, no. 2, p. 155-160. April, 1929.
- Gabrielson, Ira N. Oregon's Iris as Garden Plants. Better Flowers, vol. 9, no. 3, p. 4, illus. March, 1929.
- . Birds of the Oregon Region. Bird-Lore, vol. 31, no. 2, p. 131-132. March-April, 1929.
- Goldman, E. A. Three New Rodents from Western Arizona. Proceedings of the Biological Society of Washington, vol. 41, p. 203-206. December 18, 1928.
- Jewett, Stanley G. Limicolae of the State of Oregon. The Auk, vol. 46, no. 2, p. 214-222. April, 1929.
- . The Wedge-tailed Shearwater off the Coast of Vancouver Island, British Columbia. The Auk, vol. 46, no. 2, p. 224. April, 1929.
- Landon, C. R. The Predatory Animal Situation in Texas. Sheep and Goat Raisers' Magazine, vol. 9, no. 8, p. 212-216, illus. March, 1929.
- Lincoln, Frederick C. Sora Breeding in Mississippi. The Auk, vol. 46, no. 2, p. 228. April, 1929.
- [Wetmore, Alexander, and] Lincoln, Frederick C. Nelson's Sparrow in Maryland. The Auk, vol. 46, no. 2, p. 243. April, 1929.
- Madsen, D. H. Problems I Have Met. Transactions of the Fifteenth National Game Conference (New York City, December 3-4, 1928), p. 156-161. 1929.
- McAtee, W. L. Farsky on the Food of European Birds. The Auk, vol. 46, no. 2, p. 261. April, 1929.
- . Dozier on Fulgoridae of Mississippi. Entomological News, vol. 40, p. 133-134. April, 1929.
- . Inviting Bird Guests to Our Homes. Better Homes and Gardens, vol. 7, no. 9, p. 73 and 82. May, 1929.
- Mills, Ernest M. A New Rat Poison and Its Use. New England Homestead, vol. 98, no. 15, p. 8, illus. April 13, 1929.
- Nelson, E. W. Description of a New Lemming from Alaska. Proceedings of the Biological Society of Washington, vol. 42, p. 143-146, illus. March 30, 1929.
- Nelson, E. W., and Goldman, E. A. Four New Pocket Gophers of the Genus Heterogeomys from Mexico. Proceedings of the Biological Society of Washington, vol. 42, p. 147-152. March 30, 1929.
- . Six New Pocket Mice from Lower California and Notes on the Status of Several Described Species. Proceedings of the Biological Society of Washington, vol. 42, p. 103-112. March 25, 1929.
- Oberholser, Harry C. October and November Birds About Washington, D. C. Bird-Lore, vol. 31, no. 1, p. 12-13. January-February, 1929.
- Oman, A. E. Can Stop 10 Per Cent Loss: Two Thousand Bushels of Poisoned Wheat Could Account for a Million Gophers. Kansas Farmer, vol. 67, no. 13, p. 21, 29. March 30, 1929.
- Preble, E. A. Chocorua. Nature Magazine, vol. 13, no. 5, p. 289. May, 1929.
- Redington, Paul G. Certain Aspects of Wild-Life Conservation. Transactions of the Fifteenth National Game Conference (New York City, December 3-4, 1928), p. 98-113. 1929.
- Sans, E. R. Report on Control of Predatory Animals and Rodents in the State of Nevada in 1927-1928. In Biennial Report of Nevada State Rabies Commission, p. 3-10. 1929.

Visitors.--William Harper Davis, of New York City, who is interested in the comparative psychology of mammals, conferred with Dr. H. H. T. Jackson at the museum office on March 18. Donald R. Dickey, of the California Institute of Technology at Pasadena, spent April 15 and 16 comparing specimens in the laboratories and other offices of the Bureau. Among other recent visitors to offices of the Bureau were Franklin P. Metcalf, formerly of the Division of Food Habits Research and now of Fukien Christian University, Foochow, China; and David C. Mills, of the National Association of the Fur Industry, New York City.

Mrs. Ada Byron Morrison Retires

On April 28, 1929, Mrs. Ada Byron Morrison retired from active duty as Assistant to the Chief, completing a continuous service in the bureau of 42 1/2 years, a record second to that of only one other member of the present force. As one of four members of the Survey whose services have exceeded two score years, she has seen the office grow from a force of less than half a dozen members to its present size. She received her first appointment in October, 1886.

Always taking her work seriously, she has made an enviable record in various positions, from those of clerk and of biological assistant to that of assistant to each of the four Chiefs who have directed the work of the Bureau from the time it was created. The confidential nature of her work under the administration of each chief and her interest in the welfare of the members of the office force brought her into close relations with the personnel, so that she probably had a more intimate acquaintance with the personal problems and aspirations of the employees than anyone else. In sickness and sorrow she was ever ready to render any assistance within her power, official or otherwise.

Mrs. Morrison's record, notable not only for length and faithfulness, is not likely to be equaled by that of many others of the Survey. In her retirement from the cares of official life she carries with her the best wishes of the Survey for future health and happiness.

Secretary Hyde, in writing her, recorded the department's acknowledgment of her long and faithful service and added a word of appreciation, expressing the hope that she might enjoy to the full the rest earned by her service and devotion to duty, a hope in which all her former associates join sincerely.

Complying with her expressed wish, no formal ceremonies were held in connection with her retirement, but a few members of the Survey calling on her at her home presented her in behalf of all with a parting testimonial of the high esteem in which she has been held. Mrs. Morrison will continue her residence in Washington for the present.

BIOLOGICAL INVESTIGATIONS

Attends Conference on Deer Situation.--At the request of the Board of Game Commissioners of Pennsylvania, the Survey was represented by Doctor Bell, Vernon Bailey, and E. A. Goldman at a conference held at Harrisburg, Pa., on March 21, relative to conditions affecting deer in that State. Representatives from the Game Commission and cooperating offices, including State game protectors, the State Bureau of Animal Industry, the State Bureau of Forests and Waters, the State Agricultural College, and Bucknell University also were present. The discussions brought out many important features regarding the abundance of deer and factors affecting them, particularly in those localities where an overabundance of these animals has caused a shortage of food, resulting in a heavy mortality among the fawns of last year. The importance of a more thorough study of problems affecting deer and other game of the State to intelligent game management, both from the standpoint of game production and of game protection, was also made evident. It was decided to appoint an

Advisory Research Committee to formulate plans and organize the investigational work in order to coordinate effectively the work of Federal and State agencies. At the request of the commissioners Doctor Bell was chosen chairman of this committee.

Make Game Survey in Shenandoah Region.--In response to a request from the Commission of Inland Fisheries and Game of Virginia, Doctor Bell and Vernon Bailey spent April 6 to 8 in Bath, Highland, and Augusta Counties making a preliminary survey of the abundance of deer in the Shenandoah Mountain region, of food conditions in relation to the deer population, and of predatory animals as affecting the supply of deer, turkeys, ruffed grouse, quail, and other game. They were accompanied by local State game wardens, who took them into the more important game sections, including a 5,000-acre game sanctuary in the Back Creek Mountains and Shenandoah National Park, as well as many other sections that are particularly well adapted for game production and recreation. Their report to the Commission contains a summary of the facts determined by observation and inquiry and suggestions regarding means by which conditions might be improved and the production of valuable species of game birds and animals materially increased in this attractive outdoor setting.

Studies Wild Life of Caves and Canyons.--Vernon Bailey left Washington on April 16 for Arizona, where he will make studies of the wild life in the region about the Grand Canyon in cooperation with the National Park Service, the Carnegie Institution of Washington, and the Forest Service. On the way he expects to make an examination of a number of caves in Kentucky with special reference to their use by bats as hibernating places. This is the initial step in a rather comprehensive survey of the animal life of Mammoth Cave and others of that region, undertaken at the request of and in cooperation with the Kentucky Geological Survey. Other short stops are planned at the Carlsbad Caverns, N. Mex., for the purpose of making studies on the rate of deposition of guano since his last visit.

Murie Back in Wyoming.--Report has been received from O. J. Murie, in charge of the elk survey in the Jackson Hole region of Wyoming, covering his return to Jackson following a period of study and conference in Washington. En route to Wyoming he stopped at Ann Arbor, Mich., at the Field Museum in Chicago, at his old home at Moorhead, Minn., and at the Yellowstone National Park. At the Park he conferred with officials regarding the northern elk herd and conditions affecting them. He reports that few elk have died in this herd during the past winter. Similarly gratifying information is reported from the southern herd, which ranges south into the Jackson Hole country. Owing to favorable conditions surrounding both the northern and southern herds, the elk remained in the high country much later than usual, and recent reports indicate that great numbers are still far back in the mountains, particularly in the Upper Gros Ventre section. The elk are reported to be in good condition, and Mr. Murie says that this has probably been the most favorable winter they have had in recent years.

Talks on Birds.--F. C. Lincoln gave an illustrated address before the Takoma Park Horticultural Club at the Takoma Park (Md.) Branch of the District of Columbia Public Library on the evening of March 25. Among the 125 persons present was Dr. W. W. Stockberger, Director of Personnel and Business Administration of the Department. In his talk Mr. Lincoln gave accounts of the local birds and told how they might be attracted and their numbers increased through the planting of fruit-bearing shrubs and trees. He illustrated this phase of the subject with a series of slides, borrowed from the collections of the Wild Flower Preservation Society.

Arthur H. Howell, on the evening of March 13, gave an illustrated talk on birds before the Lyon Park, Va., Garden Club, and on April 25 before the Parent Teachers Association and students of the Falls Church, Va., Public School; this latter talk was arranged by Mrs. Paul G. Redington, who is a member of the association.

New Machine to Simplify Banding Records.---For the purpose of making more readily available the great quantity of valuable data in the banding files, arrangements are being made to install an electric punching and sorting machine. This will necessitate recarding all existing return records, but the new system will be of great value in studies of these data.

FOOD HABITS RESEARCH

Birds Start Nest Building at Bell Station.---Recent inspection of the area at Bell, Md., devoted to experiments in bird attraction, revealed that nest building operations had started. On April 5 starling activity was noted in 22, and bluebird activity in 4, of the 100 boxes available. No eggs, however, had been laid.

Attends Conference and Visits Rabbit Station.---Late in March Dr. W. P. Taylor attended a conference on forest and range influence at the Barranca Installation near San Bernardino, Calif., and also visited the Bureau's Rabbit Experiment Station at Fontana to obtain information and equipment for future field experiments in Arizona.

Studying Birds and Fruit Industry.---S. E. Piper is at present in Merced County, California, engaged in a study of the relation of birds to fruit raising.

FUR RESOURCES

Visits New York City.---During the latter part of March Mr. Ashbrook visited New York City on business connected with the fur industry, and was met there by Dr. K. B. Hanson for conference regarding the work at the Fur-Animal Experiment Station. Reports to Mr. Ashbrook indicate that financial conditions in the fur trade are improving, although prices of raw skins are still high. Mink skins are bringing from \$70 to \$100 each for the best grades, and live minks for propagation from \$200 to \$350 a pair. Doctor Hanson reports that the crop of catnip at the station came through the winter in excellent shape, and indications are that there will be a good crop this summer, with possibly as much catnip oil produced as two years ago.

New Rabbit Market Plan Adopted.---At a meeting of the Fontana Rabbit Breeders Association held in the administration building of the Rabbit Experiment Station, Fontana, Calif., March 19, a review was given of the new State market agreement unanimously adopted at a previous meeting. It is believed that this agreement will assure rabbit breeders a steady market and good prices for their product.

Feeding Facts Explained to Breeders.---An arrangement was made through the Rabbit Experiment Station for Dr. Roger W. Truesdail, of Pomona College, to address a meeting of rabbit breeders in Fontana on April 2 on "Spark Plugs in Nutrition." He demonstrated the importance of vitamins to the growth and well-being of all animals, illustrating his lecture with stereopticon slides. Rabbits breeders from Sparrland, Redlands, Riverside, Pomona, and Los Angeles were present.

Hay Inspection.--The Rabbit Experiment Station has arranged to present to breeders information regarding the Federal Hay Inspection Service, which has been made available recently through the Los Angeles office of that Service.

Visitors at Rabbit Station.--J. W. Meyer, acting director of the U. S. Rabbit Experiment Station, reports that more than 600 visitors registered at the station from January 1 to March 31, from Arizona, California, Florida, Idaho, Illinois, Massachusetts, Ohio, and Oklahoma, with two visitors from Canada. On March 22, a delegation of Japanese hotel proprietors and railroad officials made an inspection of the station.

Confers with Members of the University of Michigan Staff.--While at Ann Arbor, Mich., attending the meeting of the American Society of Mammalogists, Dr. J. E. Shillinger took advantage of the opportunity to compare notes with investigators at the University of Michigan on the matter of parasites of fur animals. He finds that the Division of Parasitology there is carrying on some interesting investigations with reference to coccidiosis of muskrats and several parasites of minks. Extensive losses were experienced on Michigan ranches as a result of such infestation. He also conferred with Dr. Ned Dearborn, formerly of this Bureau, and now with the School of Forestry and Conservation of the University of Michigan.

Visits Fox Farms in Pennsylvania.--During the past month Doctor Shillinger made two trips to Philadelphia and one to Tunkhannock, Pa., to investigate diseases of foxes. On one farm a peculiar outbreak of infectious pneumonia was in progress.

Resigned.--Hans G. Horn, junior animal husbandman, of the U. S. Fur-Animal Experiment Station, Saratoga Springs, N. Y., has resigned, effective March 15, to accept a position with Swift and Company in Chicago. William Mullady has been appointed temporarily to fill the position, and he and his family will occupy the caretaker's house.

Newspapers Interested in Fur Investigations.--The Fontana (Calif.) Herald is showing marked interest in the work of the Rabbit Experiment Station by carrying regularly a column devoted entirely to the news of the station for the benefit of rabbit breeders. Like interest in the work being carried on at the Fur-Animal Experiment Station at Saratoga Springs, N. Y., was recently shown by an illustrated article in the special magazine section of the Knickerbocker Press, of Albany, N. Y.

Gives Talk on Fur Farming.--On April 2, Dr. Karl B. Hanson, of the Fur-Animal Experiment Station, gave a talk before the Lions Club of Schuylerville, N. Y., on the history of the fur-farming industry and on the purposes of the Experiment Station.

Whelping Season at the Fur Animal Experiment Station started on March 24 with the birth of a litter of six fox pups.

ECONOMIC INVESTIGATIONS

To Consider Predatory-Animal Work in Three New States.--Mr. Young left Washington on April 15 to meet Mr. Redington at Chicago and then proceed to Madison, Wis., for a conference with State officials of Wisconsin, Minnesota, and Michigan to consider the possibility of cooperative predatory-animal control in those States. Interest in such work arises from the fact that the bounty system in effect in those States has not satisfactorily solved the problem, particularly with reference to wolves.

Rodent Control in New England.--W. E. Crouch, accompanied by James Silver, leader of rodent control in the Eastern United States, returned to Washington on March 31 from a trip to the New England States, where conferences were held with cooperators and arrangements made for more intensive rodent-control operations under the direction of assistant leader E. M. Mills.

"Crouch, Exterminator and Breeder of Rodents." is the epithet given the assistant in charge of the Division of Economic Investigations in a sketch of his "life and works" in the March, 1929, issue of Sickle and Sheaf, the quarterly organ of Alpha Gamma Rho Fraternity. "Brother W. E. Crouch, Epsilon," the account says, "is perhaps the only brother who earns a living by instructing people in the art of exterminating rodents and at the same time makes a profit by breeding them. However, upon second analysis this scheme seems very logical, since his chief title at the time of this interview was field assistant in the U. S. Biological Survey for Idaho, while his hobby was raising muskrats on his 'Emintepu Ranch' in the eastern part of the State."

After a brief outline of his life and of his career in the Survey, the article goes on to tell how with five associates he in 1925 organized the "Emintepu Ranch," a 640-acre tract near Mud Lake, Idaho, and planted 800 muskrats on it. "Crouch is manager of the farm. At the end of the present breeding season, which has just terminated, it is estimated that there are about 4,000 rats on the farm. 'Emintepu Ranch' was taken from the Indian [Chinook trade language] word, Emintepu [muskrat], which was used by all Northwest Indian tribes and white trappers who traded furs during the early days."

"'Winnie,'" as Mr. Crouch was called, says the article in closing, "is one of the best-known 'government men' in Idaho. He has conducted rodent extermination campaigns all over the southern part of the State and has been instrumental in saving farmers and stockmen from heavy crop losses. He has won a multitude of friends in this State by his faculty of recognizing people and remembering names. One of the secrets of his success among the farmers was his ability to go into any community where he had formerly worked and address each one by name."

Alaska Predatory-Animal Report Issued.--A "Report to the Governor of Alaska on Co-operative Predatory-Animal Investigations and Control in the Territory," by R. K. Stewart, leader of predatory-animal control for the Territory of Alaska, was issued on March 1, 1929, from the Juneau office. This report covers the cooperative investigation and control work (particularly of wolves and coyotes) from its inception (July 1, 1927) to February 28, 1929. The project was authorized by the appropriation of \$10,000 by the Territorial Legislature and by cooperative agreement between the Governor of Alaska and the Chief of the Biological Survey, and approved by the Secretary of Agriculture on August 6, 1927. The serious destruction of Alaskan deer, mountain sheep, and other big-game animals, and of fur-bearers and many of the game birds, including ducks and ptarmigan, by wolves and coyotes is pointed out, and in detail are given the results of the author's investigations in working out the best methods of attacking the predatory-animal situation in Alaska. Mr. Stewart recommends that any program of control undertaken should be outlined to continue over at least 10 years, for "the well-being of the game and fur interests will require continuous warfare against predatory animals. Certainly these interests are of sufficient value to the Territory and the Nation to warrant a reasonable annual expenditure for their conservation in this manner." The report is put out in mimeographed form and is illustrated with three plates of photographs and two maps showing the parts of Alaska infested by wolves and coyotes.

Pack Rats Constitute a Fire Hazard.--Joseph Keyes, leader of rodent control in the California district, reports that through arrangement with the Forest Service poisoned baits are soon to be distributed on the San Bernardino National Forest for the control of pack rats. Not only are these animals a serious pest about ranger stations, but the presence of their nests makes the use of fire trails dangerous in fighting forest fires. Especially is this true when the trail runs through an oak thicket or adjacent to such an area. The large nests of the pack rats filled with dried oak leaves constitute an exceptional fire hazard at the time of back firing. When such a nest catches fire the dried oak leaf, most dreaded by the fire fighter, is carried high into the air to endanger areas back of the trail. The results of the application of this poison will be watched with interest.

Coyotes Choose Railroad Track for Final Resting Place.--John W. Crook, assistant predatory-animal leader in the Colorado district, on a trip into the Combres Pass country with Hunter John S. Knight, found that a considerable number of coyotes were using the railroad tracks as runways, the snow being 5 to 10 feet deep on either side. Poison stations were placed along the tracks, and several coyotes that fed on them were found badly mangled by the trains, the animals apparently having picked out the track as their resting place.

Tests Again Prove Strychnine Baits Harmless to Chickens.--Louis Knowles, leader in the South Dakota district, states that while poisoned grain for mouse control was being prepared in Gregory County under the direction of Assistant Leader McFarland, several persons doubted the statement that the strychnine-poisoned baits are harmless to poultry and certain game birds. A hen, not in the best of condition, was obtained from a local poultry house and fed about 1 1/2 tablespoonfuls of the poisoned grain, the result being that the hen was admitted by the doubters to be in better physical condition on the following morning than before taking the poisoned-grain treatment.

Oregon Restricts Keeping Coyotes in Captivity.--The bill to prohibit the keeping of coyotes in captivity except in zoos mentioned in last month's SURVEY as pending in the Oregon Legislature, has now been enacted by that body, and approved by the Governor. The reasons given in the new law for such action being taken are that the coyote is considered a serious menace to the livestock industry, including poultry and wild game animals, and a carrier of rabies and other diseases; that coyotes that are raised in captivity and escape or are turned loose are many times the most destructive to livestock and game of any of the predatory animals; and that the Federal and State Governments and counties of Oregon are expending large sums annually in the control of these animals. The law also provides a minimum fine of \$50 and a maximum of \$500 for violation.

Coleman Visits Washington Office.--O. L. Coleman, assistant leader of predatory-animal control in Texas, was a visitor at the Washington office on March 26. He was spending a short vacation with relatives in the East and took this opportunity to call at headquarters. Such visits from field employees are mutually beneficial in improving acquaintance.

More Than \$130,000 in Bounties was Paid in Kansas Last Year.--A. E. Oman, leader of rodent control in the Kansas district, reports that bounties amounting to more than \$130,000 were paid during the past year on pocket gophers, jack rabbits, crows, and coyotes by counties in the State. Kansas has recently enacted a law repealing the bounties on rodents and making provision for cooperative rodent-control work between the counties and the State agricultural college, with which the Bureau is cooperating under the leadership of Mr. Oman.

This law offers an excellent opportunity to put the rodent-control operations in Kansas on a substantial basis.

Large Wolf Poisoned.--A. E. Gray, leader in the New Mexico district, reports that Hunter Andy Campbell, while working 20 miles south of Animas, N. Mex., on February 20, found signs of two wolves, and at once put out traps and poison lines for them. Traps sprung by cattle prevented the capture of the pair by that means, but the female was taken on March 15 with poison. This wolf measured 56 inches from tip to tip, and 31 inches high at the shoulder. Examination showed seven unborn young. Mr. Campbell reports that the stockmen in the locality are much elated over this catch, and he says that he will continue hunting for the mate and expects to get it, as stockmen are cooperating with him 100 per cent. Campbell was formerly employed by the Survey in Missouri, where he made a splendid record in wolf control. Since going to the New Mexico district last July, he has often expressed a desire to take a lobo.

What is High Cost Per Acre?--Joseph Keyes, leader of rodent control in California, reports interesting facts concerning the cost of thallium sulphate and its efficiency in eradicating ground-squirrel infestation, as recently brought to light in Santa Clara County. From the records in 1927, it was shown that 420 pounds of thallium-prepared grain were required to treat 15 acres, and that eradication was complete on this area with one treatment. The fact that only a few scattered kernels remained after treatment, although 28 pounds were distributed to the acre, indicates the extent of the ground-squirrel infestation. The total cost of \$45, which included \$3 for labor, is at the rate of \$3 an acre. This may appear exorbitant, but when it is taken into consideration that the owner had spent \$400 the year previous for poisons and fumigants with practically no results, the cost of the thallium-sulphate treatment was not out of proportion to the results obtained.

Hunters to the Rescue of Antelope.--A. M. Day, leader in the Wyoming district, relates that during March a request was received from the Fish and Game Commission of Wyoming that hunters be sent to the Red Desert country where it was reported that severe winter weather had driven the antelope into large bands and that coyotes were killing them in great numbers. Assistant C. C. Skinner, with Hunters Lacy, Sterrett, and Cole, left early in March and spent some three weeks poisoning coyotes in that vicinity. Their work was conducted chiefly north of Wamsutter. In a strip of open country, approximately 15 miles wide and 30 miles long, which had not been so deeply covered with snow as had the surrounding country, 2,176 poison baits were placed about carcasses around which the coyotes had been feeding. Little opportunity was afforded for checking the poisoning work to learn the results of the operations, but two hunters will be sent over the district in April to check up on the work and pick up all remaining poison baits.

Approximately 3,000 antelope were observed in this territory. The carcasses of 150 antelope were found, most of which were bucks two years old or more. It was noted that practically all antelope herds contained more males than females. It is probable that during the mating season the stronger bucks had driven the young bucks and the weak old bucks from the herd, and that in weakened condition these had perished in the storms. Only five antelope actually known to have been killed by coyotes were observed, although all the dead ones noted had been fed upon. All the antelope killed were found in draws filled with snow. Considering the severe winter in this district the antelope were in good condition. This thinning out of the bucks was probably of some benefit to the herds.

Local Woolgrowers' Association Provides Cooperation.--According to Mr. Day, plans adopted at the annual convention of the Lincoln County Woolgrowers' Association in Wyoming will provide funds for cooperating with the Biological Survey in placing nine hunters on the Wyoming National Forest during the coming summer. An assessment of 2 cents a head on all sheep entering the forest was levied by the association to be expended under the direct supervision of the Survey. This cooperative work will permit the first thorough trapping ever done in this forest, and the woolgrowers desire to lend their support in giving this plan a thorough trial this year.

Lincoln County Starts New Rodent Work.--Rodent control will be resumed on a large scale in Lincoln County, Wyo., this year. The county commissioners at their April meeting appropriated \$5,500 for rodent-control operations. The Cokeville district will be given a light treatment to prevent reinfestation of ground squirrels; upper Star Valley will again be thoroughly treated; and lower Star Valley will start poisoning operations. One crew will be started on pocket-gopher control in the Smoot section. This is the most extensive rodent-control program any county in Wyoming has ever undertaken.

Congratulations are extended to Mr. and Mrs. G. C. Oderkirk, of La Fayette, Ind., on the birth of a daughter on April 3. All members of the Division who attended the Ogden conference will remember the Oderkirks, and will join in best wishes to Baby Alice. Mr. Oderkirk is an assistant in rodent-control work in the Eastern United States district.

Congratulations are extended also to Mr. and Mrs. D. D. Green, of Denver, Colo., on the birth of a daughter on March 30. Mr. Green is assistant leader of rodent control in the Colorado district.

GAME AND BIRD CONSERVATION

Visiting Reservations in West.--Ernest P. Walker, assistant in reservations administration, is visiting various big-game preserves and bird refuges in the West.

Inspect New York Fur Houses.--Frank P. Callaghan was in New York City April 15 to 18 inspecting with Game Protector P. S. Farnham a number of fur houses with a view to obtaining evidence in connection with the illegal interstate transportation of skins of fur animals contrary to the Federal Lacey Act and in violation of State laws. A number of apparently illegal shipments of beaver skins were detected. Opportunity was afforded to view shipments on their arrival and note their handling and grading; to obtain an insight into the records maintained; and to confer with fur-house officials with a view to building up cooperative relations. Mr. Farnham continued in the inspection work until April 26.

Geese Abundant in Nebraska.--Game Protector J. Q. Holmes on March 19 reported large numbers of geese in the vicinity of Herman, Nebr., in the same locality where so many were observed by him and Protector O. D. Steele last year. He stated that hundreds of sightseers came to see the geese, which presented a wonderful sight as they came in thousands from the river to feed in the fields.

Savannah River Lands Flooded.--Game Protector E. B. Whitehead reports that the entire country adjoining the Savannah River in Jasper County, S. C., and Chatham County, Ga., was flooded in March, and that a motor boat could be operated in places where ordinarily this would be impossible on account of high grass. He says there were thousands of snipe, sora, and rails, as well as ducks, in that section; and that many hunters pitilessly killed rabbits

that were marooned on the high places where they had taken refuge. Mr. Whitehead states that all hunters were kept off the Savannah River Bird Refuge.

Bird Regulation Amendments Approved by President.--Amendments to the regulations under the Migratory-Bird Treaty Act, which were adopted by Secretary of Agriculture Hyde on April 20, were approved by President Hoover on April 23, 1929. The amendments are briefly summarized as follows:

Hunting migratory game birds from automobiles is prohibited, and the close season is continued on greater and lesser yellowlegs. In addition certain further restrictions are made on scientific collecting, including a provision that restricts the taking of migratory game birds by scientific collectors to the period on any day from half an hour before sunrise to sunset. This change will not be a handicap to legitimate collectors.

Taxidermists engaged in receiving and mounting migratory birds are now required to keep accurate records of all transactions. Applications to take or possess migratory birds for scientific or educational purposes will in future be accepted when endorsed by an ornithologist or certain persons engaged in scientific work or in wild-life conservation. This gives applicants greater latitude in obtaining endorsements, as formerly the endorsements of the ornithologists only were acceptable.

The period November 1 to January 31 is established as the open season on mourning doves in Mobile and Baldwin Counties, Alabama. In North Carolina the season on mourning doves is changed to the period November 20 to January 31, thus conforming with the State season on these birds and on quail, rabbits, and wild turkeys. Georgia is included in the group of southern States having a split season on mourning doves, the dates being September 1 to 30 and November 20 to January 31. In New York the period October 1 to 31 is established as the open season for hunting woodcock, the same as in Vermont. A new waterfowl season from September 24 to January 7 is prescribed for Illinois and Missouri. In Oklahoma the new migratory-waterfowl season is October 16 to January 31, the same as for the northern part of Texas. In the State of Washington east of the summit of the Cascade Mountains the period September 16 to December 31 is made the open season on waterfowl, the season for the rest of the State remaining unchanged (October 1 to January 15).

New Hunting and Trapping Regulations for Alaska.--Revised regulations respecting game, land fur-bearing animals, and birds in Alaska, recently adopted by Secretary Hyde, were published on April 2 in Alaska Game Commission Circular No. 6 and will become effective July 1, 1929. Important changes from existing regulations include a provision liberalizing the seasons on caribou in the Territory. Caribou may now be taken north of the Arctic Circle at any time of year, and south of the Arctic Circle from August 20 to December 31. Formerly the open season north of the Circle was September 1 to March 31. This change, recommended by the Commission, because of the abundance of caribou in the region, was effected in order to accommodate the residents in the far north and enable them to supply themselves with meat.

Another amendment permits a resident of the Kodiak-Afognak group of islands, who is engaged in agricultural pursuits, to kill a large brown or grizzly bear when such animal is considered a menace to persons, livestock, or property. This change, it is believed, will not materially affect the status of these bears, but will concede to local sentiment against the animals as evidenced by a lengthy petition for such action. The closing to all hunting and trapping of a 22,000-acre area east and north of Cordova in the Eyak Lake and Power Creek region is also in accord with local sentiment. More than 300 residents of Cordova and the adjacent region had petitioned the Commission for the establishment of this closed area.

Several changes in the regulations affect the seasons for trapping fur-bearing animals. Additional protection will be extended to minks in southeastern Alaska by restricting the open season to the month of January. The Kenai Peninsula was closed to the trapping of minks. The seasons on muskrats, foxes, and lynxes were also modified in certain portions of the Territory. The propagation of fur animals in captivity is encouraged by allowing live animals captured during the open season to be retained during the close season under permit of the Secretary of Agriculture issued through the Alaska Game Commission.

Feeding Elk at Elk Refuge.--Feeding of the elk at the Elk Refuge, Wyo., ceased in the vicinity of headquarters on March 11, except that a few are being fed by the State in order that a few calves may be captured for shipment. On April 1 the State was still feeding elk on the Izaak Walton League addition to the refuge, but this ended the feeding at the Refuge for the season. Protector Almer P. Nelson estimated that, before the feeding near headquarters ceased, there were approximately 6,000 elk on the refuge and in the near-by foothills. The animals have been in excellent condition during the winter and only a few have died. Up to April 1, 18 elk, of which three were calves and the others old cows, died on the feeding grounds and meadowlands near headquarters. On the Germain tract 9 cows, 1 bull, and 3 calves died; while on the Izaak Walton League addition there was no loss of elk.

Geese and Other Birds at Lake Malheur.--Protector George M. Benson, of Lake Malheur Bird Refuge, Oreg., reporting a flock of about 8,000 snow geese yet remaining in that locality on March 31, says that he does not recall any time when snow geese stayed so long in that region. The scarcity of flood water elsewhere in the valley is believed to be the reason. Swans and pintail ducks also were yet in the locality.

Buffalo Donated.--A two-year old buffalo bull was transferred on March 26 from Sullys Hill Game Preserve, N. Dak., to the Minot City Park, N. Dak. This animal was donated to the park to take the place of "Colonel Sully," the buffalo formerly obtained by the park authorities from Sullys Hill, the death of which was mentioned in THE SURVEY for March, 1929.

Appointment.--Miss Margaret A. Roberts, senior stenographer, has been transferred from the central stores section in the Secretaries' Office to this division and has been detailed to the Reservations section.

Sympathy is extended to United States Deputy Game Warden Roy C. Blackwell and wife of Lombard, Ill., in the death of their daughter Virginia, at Detroit, Mich., on March 26. Miss Blackwell had celebrated her twentieth birthday just two days before her death, which was caused by pneumonia and heart trouble.

The Survey also has learned with sincere regret of the death of United States Deputy Game Warden George B. Rison, of Little Rock, Ark., which occurred on March 4. Mr. Rison is survived by one sister living in Little Rock, to whom the Survey extends sympathy.

Importations.--An interesting shipment of birds and mammals for the New York Zoological Park arrived from Sydney, Australia, about March 22, including 16 six-plumed birds of paradise, 6 superb birds of paradise, 2 long-tailed birds of paradise, and 8 Stephanie's pigeons. Two echidnas also were included in this shipment.

Permits were issued for the importation of 3,195 eggs of game birds, including 15 blue-goose eggs, during the month of March.

Reports from quail inspectors on the border indicate that 83,843 Mexican quail had been entered at the three ports of Brownsville, Laredo, and Eagle Pass, Tex., up to April 20.

Violations of Game Laws Costly.--Substantial fines and jail sentences for game-law violators have been prescribed in several recent cases terminated. One offender, charged with killing four ducks from a motor boat on the Mississippi River in St. Charles County, Mo., was found guilty in Federal court at St. Louis on March 21, and fined \$250 and costs, and in addition was sentenced to 30 days in jail. Another violator, arraigned in Federal court for the eastern district of Louisiana, was recently required to pay a fine of \$100 and was sentenced to 30 days in jail for selling wild ducks. Charged with the sale and serving of wild ducks to patrons at his restaurant at St. Paul, Minn., another pleaded guilty in Federal court on April 2 and was fined \$100. The above cases are in the tabulation below.

A violator from the eastern shore of Maryland, arraigned in State court at Snow Hill during March, charged with illegally trapping wild ducks, entered a plea of guilty and was fined \$150 and costs. The evidence in this case was obtained by State Game Wardens Hall and Hill, who were assisted in its completion by Federal Protector O. D. Steele.

Treaty-Act Cases Terminated--Reports Received During March

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Barmeier, Creech*	1	Missouri	Killing ducks from a motor boat	\$250 and 30 days in jail
Hoffman, Pertuit*, Earhart**, St. Germain**	1	Louisiana	Possessing and selling ducks	\$100 and 30 days in jail
Hoffman, Remington**	2	Alabama	Shooting a coot and ducks from a motor boat	\$10 each
Roahen	11	Illinois	Possessing ducks in cold storage in close season	\$20 each
Shaver, Rogalla*, Vogel*, Stute**	1	Minnesota	Selling ducks and serving to guests	\$100

*U. S. Deputy Game Warden.

**Deputy State Game Warden.

Treaty-Act Cases Reported for Prosecution

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Barmeier	1	Missouri	Killing a wood duck
Barmeier, Creech*, Bell**	3	"	Killing ducks from a motor boat
Birsch	1	North Carolina	Possessing ducks in storage in close season
"	1	" "	Hunting ducks and killing and possessing coots in close season
"	1	" "	Possessing brant and ducks in storage in close season
Birsch, Warrington**	1	" "	Possessing ducks in storage in close season
Birsch, Williams**	5	" "	Killing and possessing wood ducks
Clarkson	3	Texas	Killing and possessing ducks in close season
"	1	"	Killing ducks from a motor boat
"	1	"	Hunting and killing ducks in close season
Farnham, Hodge, Creighton*	3	Virginia	Killing ducks after sunset
Hodge, Creighton*	2	Dist. of Columbia	Possessing ducks in storage in close season
Hoffman, Remington**	2	Alabama	Shooting coots and ducks from a motor boat
Holmes	1	Nebraska	Hunting ducks and geese in close season
Holmes, Perry	2	Missouri	Killing ducks in close season
Kelsey, Winne**	5	Florida	Killing a duck from a motor boat
" "	1	"	Hunting ducks from a motor boat
" "	2	"	Hunting and killing coots from a motor boat
" "	2	"	Hunting ducks and coots from a motor boat
Linebaugh	1	Kentucky	Killing ducks from a motor boat; possessing coots in close season
Mrovka	2	Missouri	Killing and possessing yellowlegs and sandpipers
Perry, Concannon*, Van Gaasbeek*, Smith**	8	Kansas	Possessing ducks in storage in close season
Perry, Huhn**, Ott**, Piper**	2	Missouri	Possessing ducks in storage in close season
Riddick	1	Oklahoma	Killing geese from a motor boat
Riddick, Garland*, Goodwin*, Meigs*	1	"	Possessing ducks in close season
Riddick, Turner**	2	Texas	Killing geese from an airplane
Riddick, Wiles***	1	Oklahoma	Hunting and killing ducks in close season
Reahen	2	Illinois	Hunting ducks after sunset
"	2	"	Hunting ducks in close season
"	3	"	Possessing ducks in storage in close season
"	1	Missouri	Possessing ducks in storage in close season
"	8	Wisconsin	Possessing ducks in storage in close season
"	1	"	Possessing geese in storage in close season
"	1	"	Possessing ducks and geese in storage in close season

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

*** Cooperation.

Treaty-Act Cases Reported for Prosecution--Continued

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Roahen, Raeth**	22	Wisconsin	Possessing ducks in storage in close season
" "	1	"	Possessing geese and brant in storage in close season
" "	1	"	Possessing ducks and jacksnipe in storage in close season
Shaver, Carlock*	2	Illinois	Killing and possessing a duck in close season
Shaver, Kauppi**	1	Minnesota	Possessing ducks in storage in close season
Shaver, Moore**	1	"	Killing a duck after sunset
Shaver, Nordeen**	1	Wisconsin	Hunting ducks from a motor boat: possessing ducks
Shaver, Rogalla*	1	Minnesota	Selling ducks
Shaver, Rogalla*, Moore**	2	"	Hunting ducks after sunset
Steele, O. D.	1	Maryland	Shipping ducks in improperly marked packages
Steele, Kelly**, Ruark**	1	Maryland	Killing ducks in close season
Steele, Tonkin, Capps*	1	Virginia	Hunting ducks after sunset
Steele, Ray C.	1	Oregon	Possessing ducks in storage in close season
" " "	6	Washington	Hunting ducks after sunset
" " "	4	"	Killing ducks after sunset
Steele, Haley**, Horr**	2	"	Hunting and killing ducks in close season
Whitehead	1	Georgia	Possessing ducks in storage in close season
"	1	"	Possessing ducks and geese in storage in close season
Whitehead, Hutson*	1	"	Possessing a woodpecker

Upper Mississippi Refuge Act Cases Reported for Prosecution

<u>Warden</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Hall*, Lundberg*	1	Minnesota	Trapping muskrats on closed area
Hall*, Lundberg*, Knapp**	1	"	Trapping muskrats on closed area

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

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No. 5

Doctor Nelson Retires.—After nearly 40 years with the Biological Survey and more than 50 years in the government service, Dr. Edward W. Nelson was retired at his own request on May 8, 1929. His work with the government began in 1877 when he was sent to Alaska under the auspices of the Smithsonian Institution to make meteorological observations for the Signal Service.

In the Biological Survey Doctor Nelson has served as chief field naturalist, chief of the Division of Biological Investigations, assistant chief of Bureau, chief, and for the past two years as principal biologist. His administration of the Survey (1916-1927) saw the expansion of the Bureau's work in bird conservation, through administration of the Migratory-Bird Treaty Act, the development of cooperative work with States in predatory-animal and rodent control, the inauguration by the Bureau of bird-banding studies, and the active development of the movement in favor of wild-fowl refuges, which culminated in the recent Migratory-Bird Conservation Act.

Since his retirement as chief Doctor Nelson has been engaged chiefly in preparing for publication his report on natural-history collections in Lower California and on special field investigations of big-game animals and birds, and on taxonomic revisions of important mammals. He will continue scientific work, with residence at the Cosmos Club, Washington.

On the morning of May 9, the day after Doctor Nelson's 74th birthday, and in the presence of the members of the Washington force gathered informally in the chief's office, Mr. Redington on behalf of all presented the former chief with a leather-bound booklet containing the signatures of his associates in the Bureau "in appreciation of his untiring service as a conservationist in the field of wild life, for nearly two-score years a member of the Bureau of Biological Survey, and its chief from 1916 to 1927."

An account of Doctor Nelson's notable record with the government and of his career as a scientist, together with his portrait, was published in the Official Record of May 16.

Plans for Bureau Manual Under Way.—In a memorandum of May 9, 1929, Mr. Redington called upon heads of divisions and offices to aid the Bureau's Committee on Business Methods in formulating plans for the preparation of a Bureau Manual of Procedure. This will be for the use of the Survey personnel and will embody all forms and instructions, including policies, for the guidance of employees in the conduct of their work, and will be designed to supersede the miscellaneous memoranda and circulars that have been issued from time to time. To aid the Committee in this work, Mr. Redington has asked that copies of all such forms and instructions now in force, and any other material that it would be desirable to include in such a manual, be submitted to the Committee by July 1. A manual of this kind, setting forth standards and objectives in the various lines of work and outlining instructions, has been found of great value in other government bureaus, and will make clear to the entire personnel procedures to be followed, including regulations of the Department and rules resulting from acts of Congress. The members of the Committee on Business Methods are as follows: E. J. Thompson (chairman), W. E. Crouch, E. R. Kalmbach, W. R. Dillon, and F. C. Lincoln.

Returns from Western Trip.--Mr. Henderson returned to Washington on May 9 from his trip to western field offices where he conferred with leaders on predatory-animal control, reservation administration, and personnel matters.

Bird Protection in France.--An editorial in the Oregon Farmer for May 2 says: "The Congress of the United States and the Interstate Commerce Commission are not alone in their sometimes slow action on agricultural affairs. The French Chamber of Deputies agricultural committee has just been reprimanded for leaving 'on the table' a measure introduced in 1893 giving protection to wild birds. Now, in 1929, the country has become aroused over the destruction of grain crops by pests. A famous naturalist has told the people that France could produce much more breadstuffs if insect-eating birds were protected. A new bill is being prepared to speed this protection after its neglect for 36 years."

Wild Life on National Arboretum To Be Considered.---Secretary Hyde has announced the appointment of Mr. Redington as a member of the Departmental Committee to confer with the Arboretum Advisory Council in connection with the National Arboretum being established in the District of Columbia to carry out the provisions of an act of Congress. This action was taken by the Secretary because of the relation of wild life to the arboretum, on which it is planned to make systematic studies of the abundance of animals and birds present and to take steps to increase desirable species. Other members of the Departmental Committee are the Director of Scientific Work, the Chiefs of the Bureau of Plant Industry and the Forest Service, and the principal botanist and the principal plant physiologist of the Bureau of Plant Industry. The Advisory Council, which has already been appointed, will formulate plans for the arboretum, subject to the approval of the Secretary.

Official Publications.---The following official publications of the Bureau have been received during the month:

"Cooking Domestic Rabbit." By Fannie Walker Yeatman (Bureau of Home Economics) and Frank G. Ashbrook. Mimeographed Leaflet Bi-1026, 2 p. Received May 2.

"The Effect of Poisons Used in Rodent Control on Grouse, Pheasants, and Quail." (Contributions by Paul G. Redington, F. E. Garlough and Joseph Keyes, A. E. Oman, Theo. H. Scheffer, and Dr. E. W. Nelson.) Mimeographed Leaflet Bi-1028, 17 p. Received May 16.

"Migratory-Bird Treaty-Act Regulations and Text of Federal Laws Relating to Game and Birds." Service and Regulatory Announcement--B. S. 71, 16 p. Received May 20.

"Hints on the Care of Opossums." Mimeographed Leaflet Bi-180 (revised), 1 p. Received May 22.

File Clerk Appointed.---Mrs. Roby W. Stehr was transferred on May 16 from the Bureau of Agricultural Economics to assist W. D. Hobbs in the Mails and Files Section.

Visitor.---Dr. Leon J. Cole, of the University of Wisconsin, visited offices of the Bureau on April 27. Doctor Cole was the first American ornithologist to recognize the possibilities in bird banding, which he treated in a report to the Michigan Academy of Sciences published in 1901. To his efforts more than to those of any other person was due the organization of the American Bird Banding Association in 1909, from which the work was taken over by the Survey in 1920. He has continued to maintain interest in the subject and never fails to visit the Bureau when in Washington.

BIOLOGICAL INVESTIGATIONS

Attends Meeting of Forest Research Council.---On May 3 and 4 Doctor Bell attended the meeting, at Asheville, N. C., of the Appalachian Forest Research Council, a body appointed by the Secretary of Agriculture to act in an advisory capacity with the Appalachian Forest Experiment Station. It has been active in urging the importance of biological studies in the territory included in the district. The Biological Survey is planning to detail a field biologist to work on wild-life problems at this experiment station in accordance with provisions of the McSweeney-McNary Act, which provides for a program of research in forestry and wild-life production. At the meeting Doctor Bell outlined the policies and plans of the Survey in undertaking this important study of the wild life of the region in relation to forestry production. Opportunity was afforded to visit the Pisgah National Forest and Game Preserve and confer with the director and members of the staff of the Appalachian Forest Experiment Station and to discuss in detail plans for inaugurating this research program.

Experimenting with Diet of Reindeer Does.---L. J. Palmer in his April report states that the reindeer fawning season commenced early in April and that a number of fawns were born during the month, the size and weight of which indicate the importance of proper feeding of the does. Detailed experiments are being conducted with breeding does in order to ascertain the most favorable diet.

Talks on Birds.---F. C. Lincoln during the month gave three talks on birds before local organizations: On April 17 before the combined classes of two biology instructors at Eastern High School, on the subject of bird migration; on the 18th, before the Vivarium Society at the administration building of the National Zoological Park, and on the 24th before the Home Interest Club of Takoma Park, Md., these two on bird banding.

FOOD HABITS RESEARCH

Resumes Duck-Sickness Study.---E. R. Kalmbach left Washington on May 22 for southern Oregon, where he will resume the study of the "duck sickness." Plans for the summer's work involve the establishment of a field laboratory at or near Klamath Falls, Oreg., with facilities for the conduct of parasitological and bacteriological work by specialists who will be called in later when the disease appears. Cooperation in this direction has been provided through an arrangement with the Bureau of Animal Industry. Early season work will involve a close study of the movements, food, and habits of the waterfowl of the region as well as environmental factors that appear to have a bearing on the problem. Before establishing his station at Klamath Falls, Mr. Kalmbach will confer with specialists and former cooperators at various points in the West.

To Begin Investigations of Proposed Reservations.---On June 1, C. C. Sperry, F. M. Uhler, and Neil Hotchkiss, each accompanied by an assistant, will start the season's work in connection with investigations leading to the establishment of new Federal bird reservations. Mr. Sperry will begin work in Colorado, and subsequently will visit localities in Wyoming, New Mexico, Utah, Idaho, Montana, Oregon, Nevada, and California. Mr. Uhler will begin in Kansas, subsequently visiting Missouri, Nebraska, South Dakota, Iowa, Minnesota, North Dakota, Illinois, and Wisconsin. Mr. Hotchkiss will start in North Carolina and continue in Virginia, Maryland, Delaware, New Jersey, New York, New England, Pennsylvania, Ohio, and Michigan.

The work of these men will consist mainly of an appraisal of the merits of the various areas from ornithological and botanical or food-supply viewpoints. They will continue the work until cold weather in October terminates seasonal plant growth and makes further investigation fruitless.

FUR RESOURCES

On Field Trip.--Mr. Ashbrook left Washington on May 4, for an extended field trip through northern, central, and western States. He spent several days at fox farms at Jenkintown and Betzwood, Pa., and attended the fur auction sale in New York City on May 7 and 8. After spending several days at the Fur-Animal Experiment Station at Saratoga Springs, N. Y., Mr. Ashbrook proceeded to the West and on May 27-29 attended the Far Western Conference of the National Association of the Fur Industry held in San Francisco, Calif. At the close of this meeting he left for a trip of inspection to the Rabbit Experiment Station, at Fontana, Calif.

Motion Picture Made of Fur Animals.--While at the Fur-Animal Experiment Station, Mr. Ashbrook assisted with work in taking moving pictures illustrating various features of fox farming. C. A. Lindstrom and George R. Georgens, of the Office of Motion Pictures of the Department, were at the station and a film was made for the purpose of demonstrating "Methods of Catching, Handling, and Treating Foxes." This picture is designed primarily for use at veterinarians' and fox farmers' meetings, and will be useful to specialists of this division for supplementing addresses on these subjects.

Five Badgers Arrive at Fur-Animal Experiment Station.--Through the cooperation of the Division of Economic Investigations, 3 male and 2 female badgers have been added to the stock at the Fur-Animal Experiment Station. These were furnished by Albert M. Day, leader of predatory-animal and rodent control in the Wyoming district. Dr. Karl Hanson reports that the badgers do not as yet seem so adaptable to confined conditions as foxes or martens.

Martens Born in Captivity.--A litter of martens was born on April 23 at the Fur-Animal Experiment Station to parents that have been kept there for more than a year. When the nest box was examined about a week after the birth of the animals only one of the young was found. It is a healthy male and is growing nicely.

Assistant Appointed.--Walter G. McBlain, of Philadelphia, Pa. has been appointed senior biological aide at the Fur-Animal Experiment Station, effective May 1. He will assist Doctor Hanson in experimental work.

Visitor from Norway.--Prof. Karl Lien, of the Agricultural College in Norway, visited the Fur-Animal Experiment Station on April 17 to observe the work in progress with fur animals. As this is in line with the subjects he is teaching, he was intensely interested in the project.

United States To Take Part in International Fur-Trade Exhibition.--Participation by the United States in the International Fur-Trade Exhibition, to be held in Leipzig, Germany, in 1930, has been recommended by Secretary Hyde in a letter to the Secretary of State. He pointed out that the United States is the largest fur-producing and fur-consuming country in the world and that an attractive exhibit would be mutually beneficial to the fur farmers and fur tradesmen in this country and Europe. "It is the judgment of this department," declared the Secretary, "that this important industry should be suitably represented at the International Exhibition and Congress by department officials and members of the fur trade and by a national exhibit."

ECONOMIC INVESTIGATIONS

Names of Division and Project Changed.---Administrative approval has been given to a recommendation of Mr. Redington that certain project titles of this division be changed effective July 1. Hereafter the Division of Economic Investigations will be known as the Division of Predatory-Animal and Rodent Control, a name that more accurately describes its work. The three major projects of the division will be as follows: Control Methods Research (with the laboratory at Denver, Colo., known as the Control Methods Research Laboratory), Control of Injurious Rodents, and Control of Predatory Animals.

District Leaders in Conference at Washington.---In accordance with recommendations made at the Ogden conference, it is planned to have all district leaders visit the Washington office in three groups within the year. The first group will comprise the dual leaders, those having charge of both predatory-animal and rodent control in their respective districts. These were called to Washington for a week's conference beginning May 27. Such conferences should do much to familiarize the field men with the activities of the Washington office in connection with the work of the Bureau as a whole, and also give the Washington personnel opportunity to become better acquainted with the field men and their activities. Through the contacts afforded by these meetings no doubt work will be carried on with increased efficiency and uniformity.

Predatory-Animal Work in North Dakota Requested.---The county commissioners of Steele County, N. Dak., have asked the Biological Survey to detail a predatory-animal hunter to that section to trap coyotes. They have agreed to pay his salary for two months, as well as his traveling expenses. Arrangements are being made to transfer a hunter from the South Dakota district.

Forest Service Cooperates in Control Program.---The Forest Service has furnished the Bureau with a copy of a letter, dated April 9, 1929, addressed to all district foresters on the subject of cooperation with the Biological Survey in its control program. A copy of the letter has been mailed to all field men in the Division of Economic Investigations so that they may have a clear idea of the policy of cooperation between the two bureaus and that they may fully appreciate the fine spirit of cooperation evinced by the Forest Service in matters pertaining to wild life in its forests.

Bounty on Field Mice Fails in South Dakota.---Louis Knowles, leader in the South Dakota district, reports that the commissioners of Meade County, after undertaking mouse control recently by means of the bounty system, the bounty being paid on presentation of the front feet of the mice to the county auditor, discontinued it, as it proved too expensive. The county agent is now permitted to carry on mouse control in cooperation with the Survey.

Idaho Mixing Plant Does Big Business.---T. B. Murray, leader of rodent control in the Idaho district, reports that during February and March 220,000 pounds of oats were steam rolled at the central mixing plant, 10,000 pounds of which were distributed to cooperators in the Idaho district, and 210,000 pounds were shipped to New Mexico, Wyoming, Utah, and Washington. A good quality of bait has been made available for poisoning ground squirrels and prairie dogs, and substantial savings to the districts concerned have been brought about by these operations.

Jack Rabbits Profitable in Kansas.--A. E. Oman, leader of rodent control in the Kansas district, reports that 900,000 jack-rabbit skins were marketed from the State during the past winter and 50,000 jack-rabbit carcasses shipped to eastern markets for food. Thus 950,000 of these long-eared prairie animals provided cash returns of probably \$125,000 to hunters within the State. Price quotations throughout the season ranged from 80 cents to \$1.05 a pound for dried skins. Four skins weigh a pound, or slightly more if scalp and ears are attached. One county dealer realized 26 cents each for a lot of 10,000 skins. Jack-rabbit skins are sheared for production of felt for hats. Ordinarily the skins of the white-tailed species, because of being white in winter, bring a higher price than the gray skins. Except for the difference in color of hair, however, skins from the Kansas black-tailed jack rabbits are practically equal in quality to those of the white-tailed species. Thus when fashion decrees dark shades in felt hats, the Kansas black-tailed rabbit skins sell at about the same price as the white variety, as was the case during the past winter. Mr. Oman is of the opinion that Kansas could contribute 1,500,000 jack rabbits a year for fur and food purposes and still maintain the supply indefinitely.

More Than 600,000 Jack-Rabbit Skins Also Sold in Idaho.--Mr. Murray reports that a successful jack-rabbit-poisoning campaign was recently conducted in the Idaho district in which 4,490 ounces of strychnine were used. A large number of jack rabbits were destroyed, and shippers' records show that more than 600,000 skins were put on the market at an average price of about 12 1/2 cents each. This represents an income of approximately \$75,000 to cooperators in Idaho during the winter control campaign. Mr. Murray reports that jack rabbits are less in number at present in all parts of southern Idaho than at any time during the past 20 years. If the market for jack-rabbit pelts continues at a price that makes it profitable to skin the animals, it will mean that jack rabbits, though still a pest, can be reckoned also as a resource.

Transferred to Idaho District.--Robert P. McFarland, who has been acting as assistant in predatory-animal control in the South Dakota district, was transferred on April 15 to the Idaho district to assist L. J. Goldman, leader of predatory-animal control in that State.

Coyote-Poisoning Campaign Is Successful in Idaho.--Mr. Goldman reports effective results from intensive coyote-poisoning campaigns conducted on the several projects in cooperation with the various national-forest grazing associations. On all projects coyotes are reported to be scarce, and hunters are finding few of the old dens occupied. Live-stock losses have been few. The owner of one Idaho sheep outfit grazing 150,000 breeding ewes states that "there is not one coyote on the ranges where there had been ten," and that it has been a long time since he has observed any sheep killed by coyotes. The cooperating stockmen state that the past season's work is the best they have ever had from the Bureau. This is very gratifying and indicates fully the merits of cooperative work.

Leaflet Issued on Effect of Rodent Poisons on Game Birds.--A mimeographed leaflet, Bi-1028, was recently compiled, giving the reports of the various experiments conducted to determine the effects of the poisons used in rodent control on grouse, pheasants, quail, and other gallinaceous birds. A supply of these circulars has been mailed to district leaders for distribution to cooperators and others requesting the information.

Examinations Announced.--Assembled examinations for senior biological aide and for junior biologist (salaries \$2,000 to \$2,500) to fill vacancies in this division have been announced by the United States Civil Service Commission. For the senior biological aide

examination applications must be on file with the Commission not later than June 25, the corresponding date for the junior biologist examination to be announced in the near future. Competitors will be rated on practical questions relative to the duties of the positions and on education, training, and experience.

Transferred to Control Methods Project.--Wallace W. Smith, who has been assistant in rodent control in the South Dakota district, was transferred on April 15 to the Control Methods Research Project. He will be district investigator with headquarters at Billings, Mont.

Mud Turtle Feeds on Sprouting Corn.--Mud turtles may invade cornfields and compete with ground squirrels and moles in destroying stands of corn, according to information that has come to the attention of Mr. Oman. A Riley County, Kans., farmer reports that in the spring of 1928 he noted a mud turtle moving along a listed corn row. Close inspection and observation showed that the turtle rooted along, hog-fashion, to find the sprouting corn.

Groundhog Control Film Made.--James Silver and F. N. Jarvis, of the Eastern Rodent-Control district, in cooperation with the Office of Motion Pictures of the Department, recently completed the filming of a motion picture on groundhog control, at Leesburg, Va. This film will be available sometime after July 1.

Good Attendance at Rat-Campaign Meetings.--C. D. Schwartz, of the Eastern Rodent-Control district, stationed at Raleigh, N. C., has held 50 meetings in connection with rat campaigns in North Carolina during the past three months, most of them at public, high, and agricultural schools. A total of 17,324 persons attended, or an average of nearly 350 at a meeting.

Rancher Saved \$4,300 in Rodent Control.--A report from E. E. Horn, California district investigator connected with the Bureau's Control Methods Research Laboratory at Denver, Colo., tells how one rancher in Santa Clara County, Calif., saved \$4,300 by following methods recommended by the laboratory for the control of ground squirrels. This rancher was prepared to use carbon disulphide as a fumigant in treating 4,500 acres at an estimated cost of \$4,500. Experiments, however, showed that results from this chemical against ground squirrels under prevailing conditions on the area would be very low. The recommended poison mixture of steam-crushed oats and thallium sulphate was used in treating the area, at a cost of only \$200. Satisfactory results were obtained and a saving of \$4,300 effected. This saving to one rancher through improved methods nearly equals the salary and expenses of the investigator in the California district for the year, and the saving throughout the State from better rodent control and increased crop production will be far in excess of the entire expenditures for the Control Methods Laboratory.

GAME AND BIRD CONSERVATION

Protection of Swans Not To Be Diminished.--Explaining why no open season on swans had been provided in the recent amendments to the regulations under the Migratory-Bird Treaty Act, Mr. Redington recently stated that he considered that to recommend an open season in the United States at this time on these beautiful and comparatively rare birds would be a violation of this country's obligations under our treaty with Great Britain. Many requests had been received to allow limited shooting of swans, the plea being made that they were destroying wild-fowl food plants by pulling them up by the roots in such quantity as to menace the future supply for other waterfowl. Answering this charge spe-

cifically, Mr. Redington said that our investigations do not show that swans destroy wild-fowl food to any greater extent than do other species of waterfowl. In fall and winter they take the parts they like, but leave sufficient seeds, fragments of rootstocks, tubers, etc., to insure reproduction of the food crops the next season. "If this were not true," he stated, "swans would be compelled to abandon their favorite wintering grounds, and the fact that they do not do so, but instead return to them year after year, is really a guarantee that their feeding habits are not so pernicious as is believed."

Swans have been given complete protection throughout this country because the total number of our two species combined is not large and because irreparable damage to the species would result if shooting were permitted, since practically all the swans of eastern North America winter in a limited area in the Middle Atlantic States. Of the two species of swans, the trumpeter swan has been for years near the verge of extinction. Owing to the fact that it is impracticable to expect the average gunner to distinguish between the trumpeter and the whistling swans, it has seemed necessary to give all swans close protection. The careful consideration that it deserves has been given the matter, since an error at this stage might result in the total extermination of a rare and valuable species.

Another Airplane Case.--A case involving the pursuing of migratory waterfowl from an airplane submitted for prosecution during the month brings the total of such cases submitted since the passage of the Treaty Act to 33. The evidence was obtained by Federal Game Protector G. M. Riddick and State Game Ranger Paul Meigs of Oklahoma.

Game-Bird Exhibits.--The Survey conducted an exhibit of game birds at the Outdoor Exposition held in Milwaukee, Wis., from May 4 to 10, and also at the Outdoor Life Show held in St. Louis, Mo., from May 13 to 18. Protector Kenneth F. Roahen was in charge of the Milwaukee exhibit, and Protector Harry Barmeier of the one at St. Louis. Both protectors report much interest manifested in the activities of the Biological Survey.

Overhaul Motor Boats.--Capt. Moody Creighton, of Washington, D. C., spent the week of May 12 at Nacot Creek, N. J., assisting Protector Albert Stadlmeir in overhauling the motor boats Brant and Sanderling.

Heavy Fine for Trafficking in Beaver Skins.--For several months United States Game Protector B. E. Smith of Portland, Me., has been engaged in checking the activities of a resident of Maine suspected of illegally dealing in beaver skins on a large scale, many of which were shipped in interstate commerce. He was finally successful in obtaining sufficient evidence on which to base prosecution, and the offender was arraigned in State court during April, 1929, entered a plea of guilty, and was fined \$2,000.

Death of Deputy Warden.--It is with sincere regret that the death is recorded of U. S. Deputy Game Warden August B. Vogel, of Oak Harbor, Ohio, which occurred on April 21 from an attack of heart trouble. Mr. Vogel was a retired farmer and was much interested in wild-life conservation, devoting practically all his time to Federal and State activities along that line. The Survey extends sympathy to his wife and family.

Congratulations.--The Survey has recently learned of the marriage of Game Protector Kenneth F. Roahen, of Peoria, Ill., to Miss Susan Olathe Gouker, of Chicago. Mr. Roahen's friends in the Survey join in extending best wishes to him and Mrs. Roahen.

Nunivak Island Reservation Established in Bering Sea.---By Executive order of April 15, 1929, President Hoover has reserved for the use of the Department of Agriculture Nunivak Island, off the coast of Alaska, in Bering Sea, for work of the Biological Survey in conducting experiments in the crossing and propagation of reindeer and native caribou, for contemplated experiments in re-establishing the musk-ox in Alaska, a part of its native range, and as a preserve and breeding ground for native birds and wild game and fur-bearing animals. The island has a length of 60 miles and a maximum breadth of approximately 40 miles, and its reservation from sale or entry was recommended by the Department as it is considered admirably situated for the purposes named in the Executive order. The Biological Survey transported several caribou to Nunivak in 1925, and experiments in crossbreeding with the reindeer there are already in progress under the supervision of L. J. Palmer, of the Reindeer Experiment Station maintained at Fairbanks, Alaska, by the Division of Biological Investigations.

Fort Keogh Bird Refuge Established in Montana.---A 57,000-acre sanctuary for birds on the site of the former Fort Keogh Military Reservation near Miles City, Mont., to be known as the Fort Keogh Bird Refuge, has been created by President Hoover by Executive order dated May 18, 1929. Since 1924 this reservation has been under the control of the Bureau of Animal Industry as a Range Livestock Experiment Station for the study of stock grazing and the growing of range forage crops. The establishment of the Federal refuge was recently recommended by the Montana Fish and Game Commission and by the Custer Rod and Gun Club, of Miles City. A 70-acre artificial lake on the area, which has been in use for several years as a pond cultural station for the production of warm-water fishes, particularly black bass, has been operated by the Montana Fish and Game Commission in cooperation with the United States Bureau of Fisheries. This station will be continued and the establishment of the refuge will not interfere with the fish-cultural operations.

The land area of the refuge is inhabited principally by sharp-tailed grouse and ring-necked pheasants, which are reported to be on the increase there. The artificial lake forms an important resting place for the waterfowl and other migratory game birds of the region. Although there has been little hunting on the area since it has been operated as a livestock experiment station, officials believe that the complete protection of birds there will result in material increases in their numbers, thus greatly benefiting game-bird hunting in the adjacent region by overflow from the refuge. While the refuge is primarily under the jurisdiction of the Biological Survey, it will be administered in cooperation with the Bureau of Animal Industry, and one or more station employees will be designated as wardens to enforce reservation laws.

Returns from West.---Ernest P. Walker, assistant in reservations administration, has returned to Washington after visiting the big-game preserves and some of the bird refuges in the West, including Niobrara Reservation, Nebr.; Wind Cave Game Preserve and Belle Fourche Bird Refuge, S. Dak.; Minidoka Bird Refuge, Idaho; and Lake Malheur Bird Refuge, Oreg.; and inspecting with U. S. Game Protector R. C. Steele, Upper Klamath and portions of Klamath Lake Bird Refuges, Oreg. and Calif., and Clear Lake and Tule Lake Bird Refuges, Calif. On his way east Mr. Walker stopped at the National Bison Range, Mont., and Sullys Hill Game Preserve, N. Dak.; and visited the Upper Mississippi River Wild Life and Fish Refuge headquarters at Winona, Minn. At Ogden, Utah, he conferred with officials of the Solicitor's Office and attended a conference held by Mr. Henderson with various men working on the Bear River Project. He conferred also with Protector Almer P. Nelson of the Elk Refuge, Wyo., at Ashton, Idaho, and with Game Protector George E. Mushbach at Billings, Mont.

Steele To Succeed Cox on Upper Mississippi River Refuge.--Ray C. Steele, at present United States game protector with headquarters at Portland, Oreg., will become superintendent of the Upper Mississippi River Wild Life and Fish Refuge, to succeed William T. Cox, who, as announced in last month's SURVEY, will resign to accept appointment with the Government of Brazil for the purpose of organizing a National Forest Service for that country. Mr. Steele comes to his new duties with an extensive acquaintance with wild life and a keen interest in the conservation of both birds and mammals. He is a native of Missouri and received his early education in the public and business schools of Waitsburg, Wash. In 1917 he enlisted for military duty and served through the World War. His first appointment with the Biological Survey was on February 9, 1920, when he was made United States game protector with headquarters first at Seattle and later at Portland, Oreg., his district including the entire State of Oregon and that part of Washington west of the Cascade Mountains. Mr. Steele has been highly successful in enlisting the cooperation of State officials, sportsmen's organizations, and individuals with the Survey, and in creating local respect for the game laws administered by it. He has carried on investigations with duck sickness also at points in Oregon and California, and has represented the Alaska Game Commission at the port of Seattle in the enforcement of the law and regulations pertaining to the importation of land fur-bearing animals of that Territory. This work was carried on coincidentally with that of his duties as game protector.

Bird-Refuge Notes.--Warden Charles M. Conger, of Conconully Bird Refuge, Wash., reports that geese have been scarce in that locality this spring. The spring was late and cold at Clear Lake Bird Refuge, Calif., and it is believed that many birds passed over without stopping. The first young geese of the season were seen there on April 30. Protector George M. Benson, of Lake Malheur Bird Refuge, Oreg., reports that there were still a few swans and snow geese on the lake on April 26--the latest date in the spring on which he has noted these birds there. Harold P. Bennett, in charge of the Tampa Bay group of bird refuges, Fla., visited Passage Key Refuge during April and reports that it now consists of only one bar about two acres in extent, and without vegetation. This bar is inundated at high water. At the time he visited the refuge he saw about 500 royal terns at rest there and also observed two oyster-catchers, as well as plovers, turnstones, willets, sandpipers, and a few cormorants.

No More Surplus Elk at Bison Range.--All the surplus elk in the herd at the National Bison Range have been removed from the reservation. They have been disposed of for restocking State ranges in Montana, for use as meat by the near-by Indians, and for propagation or exhibition purposes by private parties. During March 185 elk were removed from the range.

Elk Refuge Notes.--Most of the elk had left the Elk Refuge, Wyo., and gone back to the foothills by April 30. During the past winter approximately 920 tons of hay were fed to the elk at the refuge, of which about 370 tons were purchased by the State, the rest being from the hay harvested on the refuge last summer. The four pairs of Chinese pheasants sent to the refuge from Lander, Wyo., by the State fish and game commissioner, and kept in the barn at headquarters since the latter part of January, were liberated on April 15 and have not been seen since. Troy Pratt, assistant to Protector Almer P. Nelson, has moved with his family from the quarters on the Germain tract to the new dwelling house, which has been constructed on the Izaak Walton League addition to the refuge.

Purchasing Airplane.---Alaska Game Warden Sam O. White and his wife, of Fairbanks, Alaska, have made plans to purchase a two-place monoplane, and Mr. White has been taking instructions in the operation of planes from local pilots at Fairbanks. After he has qualified as a pilot, he hopes to use the plane in connection with his official work, if the necessary arrangements can be made. According to Mr. Terhune, executive officer of the Alaska Game Commission, the advantages to be gained by Mr. White's use of the plane in connection with his patrol work will be of incalculable value to the Commission.

Importations.---The season for the importation of quail from Mexico closed on April 30, 87,131 birds having been brought in at the three ports of Brownsville, Laredo, and Eagle Pass, Tex., the largest number recorded in any one season since importations began. The total reached this year will be more appreciated when it is considered that revolutionary activities in Mexico interfered with the shipment of quail to some extent by causing a temporary cessation of railroad activities.

There has been an unusual demand for eggs of game birds during the past month, and permits were issued for 9,700, mostly pheasant eggs from England.

Treaty-Act Cases Terminated--Reports Received during April

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Barmeier,Heller*	4	Kentucky	Hunting ducks from a motor boat	\$50 each
Birsch	2	North Carolina	Killing ducks from a motor boat	\$10 each
Holland*,Thompson**	1	Louisiana	Killing and possessing robins	\$10 and costs
Roahen	4	Iowa	Hunting ducks from a motor boat	\$100 each
"	3	"	Killing ducks from a motor boat	\$100 each
"	1	"	Killing ducks from a motor boat	\$200
"	1	"	Hunting ducks from a motor boat	\$25
"	1	"	Hunting ducks from a motor boat	\$10
Smith	1	Maine	Hunting ducks after sunset	10 days in jail

Treaty-Act Cases Reported for Prosecution

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Barmeier,Creech*, Heller*	1	Missouri	Hunting and killing ducks from a motor boat
Britton,Stevenson*, Williamson**	1	New Mexico	Possessing ducks in close season
Riddick,Meigs**	1	Oklahoma	Hunting ducks from an airplane
Whitehead	2	South Carolina	Hunting ducks after sunset

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

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THE SURVEY

RECEIVED

★ JUL 23 1929 ★

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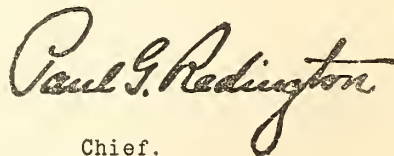
No. 6

GENERAL NOTES

Plans Being Laid for Antelope Conservation.--From my knowledge of the men and women in the Survey, I feel that they are glad to be kept advised of important progressive moves in the big field of wild-life conservation. In discussing matters with field men particularly, I have been gratified to see their interest in Bureau matters other than those in which they are principally concerned. This broad-minded attitude, I believe, will operate to extend widely throughout the territory in which our field men are active the knowledge of what the Biological Survey is doing. We can not overlook the truism that knowledge of the job and the efficient conduct of that job are two elements of public relations that always register heavily.

The Biological Survey now has under its jurisdiction several big-game reservations. I am glad to inform you that an initial step was taken late in June that may lead eventually to the placement of further responsibility in this respect on the Survey and its officials. The President on June 20 signed an order withdrawing from entry 27,763 acres of public land in Washoe County, Nevada. This general region has long been a favorite place for antelope. Because of the interest of the Survey in the future of this beautiful animal and through enlistment of the aid of Dr. T. Gilbert Pearson, of the National Association of Audubon Societies, the springs in this arid country now owned by private individuals are under option for purchase by Doctor Pearson and some of his friends. It is expected that private lands adjoining these springs also will be purchased. The general understanding is that when such purchases have been consummated, title to the acquired land and water will be turned over to the Biological Survey and an unfenced reservation established for better protection of the pronghorn.

Antelope have not done any too well on our fenced reservations. We believe that if present plans are carried to execution, and a warden is placed on the job to prevent poaching by human beings and to keep predatory animals trapped out, the future of the antelope in this region will be made secure. I believe all members of the Survey will join with me in the hope that this notable project may be consummated.



Chief.

Survey's Work Aids Postal Officials.--As an instance of the diversity of services rendered by the Biological Survey might be mentioned a request that has come from the Post Office Department for the correct English names of a considerable list of foreign birds and mammals, the importation of which into France is prohibited. This is for publication in the United States Official Postal Guide. The Survey is daily called upon to furnish correspondents authentic information regarding birds and mammals.

Visitors.--Dr. Morris A. Stewart, professor of entomology at Rice Institute, Houston, Tex., formerly with the Eastern Rodent Control District, visited offices of the Bureau on June 14. Since leaving the Survey, he has received his Ph.D. degree from Cornell University.

Fenley Hunter, big-game hunter and explorer of Flushing, N. Y., visited the Bureau on June 6 and William P. Harris, Jr., of Detroit, Mich., on June 12.

Auditing Clerk Appointed.--Walter J. Hunt has been transferred, effective June 16, from the accounts division of the Supervising Architect's Office of the Treasury Department to the position of auditing clerk in the Office of Accounts of this Bureau.

Official Publications.--The following official publications of the Biological Survey were issued during the month, including eight articles in the 1928 Yearbook of Agriculture (issued June 7) not separately reprinted:

- "Bird Refuges Play Indispensable Part in Saving Wild Life," by Ernest P. Walker. Yearbook 1928, p. 159-162, illus.
- "Birds Can Be Attracted to Wood Lots by Various Measures and Practices," by W. L. McAtee. Yearbook 1928, p. 162-164, illus.
- "Fur Farmers Aided by Research in Combating Outbreaks of Disease," by Dr. J. E. Shillinger. Yearbook 1928, p. 341-342.
- "Muskrat Farming in Marsh Areas Becomes a Profitable Industry," by Frank G. Ashbrook. Yearbook 1928, p. 469-470, illus.
- "Rat Control Aided by Development of Effective New Poisons," by James Silver. Yearbook 1928, p. 518-521, illus.
- "Waterfowl Breeding a Necessary Adjunct to Protective Measures," by W. L. McAtee. Yearbook 1928, p. 601-602, illus.
- "Wild Animals Affect Forest Production in Many Important Ways," by Dr. W. B. Bell. Yearbook 1928, p. 608-610, illus.
- "Hunters' Licenses Issued by States, with Total Money Returns; for the Seasons 1925-26 and 1926-27", compiled in Division of Game and Bird Conservation. Yearbook 1928, Table 581, p. 1106.
- "Gourds for Bird Houses and Other Purposes," by W. L. McAtee and J. H. Beattie (Bureau of Plant Industry). Leaflet No. 36, 4 p., illus. Received June 3.
- "Cottontail Rabbits in Relation to Trees and Farm Crops," by D. E. Lantz. Farmers' Bulletin 702 (revised), 14 p., illus. Received June 27.

BIOLOGICAL INVESTIGATIONS

Studies Condition of Deer.--Doctor Bell spent the period June 10 to 14 in Pennsylvania with the executive secretary of the State Board of Game Commissioners studying conditions affecting deer, particularly in Clearfield and adjacent counties. He conferred with other members of the special fact-finding committee appointed by the game commission, of which committee he is chairman and which includes representatives of the State Bureau of Animal Industry, Bucknell University, and the Agricultural Experiment Station of the State Agricultural College. Arrangements were made for a detailed study of parasites and diseases affecting the deer, and of the nutritive or toxic properties of the various plants upon which the animals feed, as well as for the continuance of the field studies relative to their habits, abundance, proportion of the sexes, and the welfare of the fawns under conditions at present existing in Pennsylvania.

Plan Cooperative Research.--At the request of the Virginia State Forester, Doctor Bell on June 18 conferred with the Commissioner of Game and Inland Fisheries of Virginia, the chairman of the State Committee on Forestry, and the State Forester for the purpose of assisting in working out plans for cooperative research in the relationships that wild life sustains to forestry production. These conferences proved interesting and helpful in bringing to light conditions affecting game, fur-bearers, and other animals in the State, and opportunities for effective joint conservation effort through cooperation of the Biological Survey, the State Forestry Department, and the Commission of Game and Inland Fisheries.

Deer on Kaibab Studied.--A study of the mule deer in the Kaibab National Forest and the Grand Canyon National Park, Ariz., has recently been made by the Department of Agriculture, in cooperation with the National Park Service and the State of Arizona, to learn how the animals came through the winter, the condition of their natural food supply, the effect of winter feeding on the growth of forest vegetation, and the relation of their numbers to the maintenance of an adequate food supply without detriment to forest production. The Biological Survey was represented by E. A. Goldman, Vernon Bailey, and M. E. Musgrave, the party consisting also of Forest Service and Arizona State officials and the superintendent of the Grand Canyon National Park.

This study is a continuation of investigations made from time to time over a period of several years to obtain information needed as a basis for satisfactory management of the important deer herds of the region. Most members of the party reached the conclusion that the deer are still far too numerous and that the destruction of normal deer food and forest reproduction, including that of the yellow pine, continues to be progressive. On the basis of information obtained, plans will be developed for an ultimate solution of the serious problem of overstocking with deer in the Kaibab area. Effort is being made to place the deer of this region on a basis of numbers that can be maintained permanently and prove an important asset without interfering with other forest interests and without so depleting the food supply as to cause the death of great numbers through starvation from year to year.

Inspects Trapping Stations.--F. C. Lincoln spent June 13 and 14 inspecting trapping stations in the vicinity of Norristown, Pa., and in discussing with cooperators various phases of the bird-banding work. Several large active banding stations are being operated in this region, some maintaining as many as 40 traps in constant use. On May 31, he gave instruction on bird study to the assembled Boy Scout troops of Takoma Park, Md.

Bands Geese.--On June 20, Mr. Lincoln visited the estate of Eugene E. DuPont, near Wilmington, Del., where he banded 81 adult and young Canada geese in a little more than one hour's time, which is believed to be a record for banding work with birds of this size. The owner hopes to make an important game refuge of his estate, and if he is successful will establish a permanent banding station there for waterfowl.

Returns from Florida Field Trip.--A. H. Howell returned to Washington on June 6 from a month's collecting trip in Florida. In the course of these field operations Mr. Howell and his assistant, W. Howard Ball, covered about 1,400 miles in northern and central Florida by automobile, camping en route. The area traversed extended from the Georgia line south to St. Petersburg and the Kissimmee Prairie. Detailed information was obtained on the breeding ranges of many species of birds, and specimens of a number needed were obtained for critical study. This field work was carried on in cooperation with William G. Farga, of Jackson, Mich., who has a winter home in Florida and is greatly interested in advancing knowledge of the avifauna of that State.

Studies Duck Sickness.--After conferences with cooperators interested in furthering the duck-disease investigation in Minneapolis, Salt Lake City, Sacramento, and Berkeley, E. R. Kalmbach has established headquarters at Klamath Falls, Oreg. There is already some evidence of the malady and indications are that the season will be favorable for conducting investigations. The work will be carried on more intensively this year than in the past, and it is hoped that more definite results will be reached.

Surveys of proposed migratory-bird refuge areas are now under way, three field parties being engaged in the work. The names of the leaders and an outline of the territory to be covered were given in last month's SURVEY. It may now be added that C. C. Sperry is being assisted by A. C. Martin, of California; F. M. Uhler by Fred A. Warren, of Washington; and Neil Hotchkiss by Leonard E. Ekvall, of Illinois.

Appointment.--Clarence Cottam, of Utah, reported for duty as junior biologist on June 1. He will be engaged in a study of the food habits of birds, including both field and laboratory work, his first assignment being the completion of the examination of the stomachs of diving ducks.

FUR RESOURCES

Reports on Work at Rabbit Station.--Mr. Ashbrook spent the month of June at Fontana, Calif., and reports that the year's work there has been most successful. This was made possible by the efforts of John W. Meyer, the acting director, and by the splendid cooperation manifested by the rabbit breeders, not only in California but in other sections of the United States. There are now 150 breeding does and 20 bucks of different breeds at the station, with approximately 50 young animals, and the number disposed of for meat has averaged about 70 a month. A fertilizer experiment for the establishment of a market value for rabbit manure is in progress, the results of which will be valuable not only to the development of the rabbit industry but to citrus growers as well. The equipment and facilities at the station now include four inclosed breeding buildings, four outside rabbit runs, a new open shed unit with a total capacity of 300 individual hutches, and eight pens.

Rabbits Diseases Discussed.--Rabbit breeders in the vicinity of Fontana, Calif., assembled on June 4 to hear an address by Dr. John F. Kessel, parasitologist of the University of California, who is working in cooperation with the U. S. Rabbit Experiment Station in seeking to solve some of the problems now confronting the industry. Doctor Kessel spoke particularly on diseases of rabbits, pointing out why scientific research was of so much value to breeders. The president of the Fontana Rabbit Breeders Association reported on a new marketing plan, which is progressing satisfactorily.

Visits Fox Ranch in Pennsylvania.--On June 8, Dr. J. E. Shillinger investigated a reported outbreak of infectious disease in foxes on a large ranch in Pennsylvania. The conditions clearly indicated that an epizootic was prevalent, and while no great losses had yet been encountered the disease gave evidence of spreading.

To Attend Veterinarian Meetings in West.--About the first of July Doctor Shillinger will leave Washington to attend veterinarian meetings at Missoula, Mont., and Vancouver, B. C. En route he will stop at Minneapolis, Minn., and on his return will visit several muskrat marshes in southern Idaho and fur farms reported to be raising coyotes in Washington and Colorado. He also plans to confer with O. J. Murie at Jackson, Wyo., and other department representatives in Salt Lake City, Utah, and Denver, Colo.

Visits Rabbit Station.--Mrs. Minnie Weinstein, representative of the National Association of the Fur Industry, New York City, during a recent trip to Los Angeles to make tentative arrangements for the association's convention, which will be held there next year, visited the Rabbit Experiment Station. Mr. Ashbrook is initiating plans for the association to include in the convention program a day's trip to Fontana, so that the furriers may visit the station and become acquainted with the work done there of interest to rabbit breeders and furriers.

Attend Fox Breeders Meetings.--Dr. Karl B. Hanson and Dr. Earle T. Dewey attended the Wisconsin Fox Breeders Association meeting at Wausau, Wis., June 20-22; the Fox Breeders Summer School, at Minneapolis, Minn., June 24-26; and the Iowa Fox Breeders Summer School at Ames, Iowa, June 28-29.

Badgers Sent to Saratoga Springs.--The Division of Economic Investigations has shipped three more badgers from Cheyenne, Wyo., to the Fur Animal Experiment Station at Saratoga Springs, N. Y., making a total of eight of these animals furnished by that division for experimental work.

Congratulations are extended to Mr. and Mrs. John W. Meyer, of Fontana, Calif., on the birth of a son, John McAllister, on June 3.

ECONOMIC INVESTIGATIONS (Predatory-Animal and Rodent Control)

Dual Leaders Meet in Washington.--As mentioned in last month's SURVEY, the dual leaders of predatory-animal and rodent control met in Washington for a week's conference beginning May 27. The program was arranged to present to these leaders an idea of the workings of the Survey as a whole and included addresses by Mr. Redington, Mr. Henderson, heads of division and offices, and a number of the members of the scientific staff on their respective lines of work. Much time also was spent in round-table discussions of various problems. The leaders spent Memorial Day on a division picnic at the Civil War battlefield at Antietam, Md. The general purposes of this conference and of others planned to be held during the coming year, were set forth by Mr. Redington in his remarks at the opening session:

"You men of the field organization are very cordially welcomed to Washington. The nature of the organization of the Biological Survey has not operated in the past to keep the Washington office and the field force as closely together, either personally or officially, as is desirable. The Ogden conference a year ago accomplished much in unification of policy and brought to this branch of our work a common understanding and a personal contact that furnish conditions precedent to tiptop accomplishment.

"You field men who are in Washington for the week have in your respective regional operations a heavy responsibility to meet in that you are called upon to direct two lines of control work, each widely different in method. You not only have to keep in touch with and adopt for practice up-to-date methods of control work in the field, but also you and your subordinates must know well the minutiae of the many processes--accounting, reporting, purchasing, etc.--that are peculiar to Government business. To permit you who are in responsible places to become personally more familiar with many of those details, which are necessary to know if our machinery is to run smoothly, is one of the reasons for this meeting.

Our Washington men will give to you of their knowledge. It will be possible through individual conferences between us for me and my associates to get a clear picture of the political and policy situations you are facing in the States. You will have some time to look around the Capital in the most beautiful season of the year, and arrangements have been made to go farther afield on a visit to some of the historic places of the region. We hope that you will derive from this week's sojourn the pleasure we shall receive by your presence here."

Critics of Predatory-Animal Work Answered.--Because of many adverse criticisms and false statements directed against the predatory-animal control operations of the Bureau, appearing from time to time in various newspapers and journals, it seems advisable to make a clear statement concerning the policies of the Bureau in regard to the use of poisons to effect predatory-animal control. With this in mind, and at the request of the editor of Hunter-Trader-Trapper, Mr. Redington has prepared an article setting forth the policies of the Bureau in connection with predatory-animal control, which will appear in the August issue of that journal.

Death of Hunter Robert J. Elledge.--It is with regret that the death is recorded of Hunter Robert J. Elledge, of the Texas district, which occurred on May 24. According to information received by the Bureau, Mr. Elledge was on the trail of a mountain lion and as he was trying to force his horse over a bad place the animal fell, crushing him so badly that he died a few hours later. Hunter Elledge was only 26 years old. He was a natural hunter and a high-class man in every respect, and will be greatly missed from the force. He is survived by a wife, to whom sympathy is extended.

Indians and Indian Service Officials Cooperate in Rodent Control.--Paul T. Quick, assistant in rodent control in the Idaho district, reports that during May he was assisted by 12 crews, with an average of six men to the crew, on the Coeur d'Alene Indian Reservation. These crews were made up of Indians resident on the reservation, Indian Service employees, and lessees of Indian land. This excellent cooperation made it possible for Mr. Quick to cover a large area of Federal land in ground-squirrel control operations.

Cost of Shooting Jack Rabbits Studied.--Mack Taylor, rodent control assistant in the Arizona district recently conducted an 8-day trial to ascertain the cost of destroying jack rabbits by the use of a 22 caliber rifle. Donald A. Gilchrist, rodent control leader in Arizona, under whose supervision the trial was carried on, reports that this experiment indicates that these animals can be killed in this way at a cost of \$.0332 each, including outlay for wages, cartridges, and transportation, whereas previously it had been found to cost \$.0387 each to destroy jack rabbits by the use of poison. The trial was conducted in order to determine whether it would be advisable to use rifles in jack-rabbit control, since jack rabbits of the Southwest can not be successfully poisoned on a livestock range because of the danger to stock and the lack of concentration of the rabbits. In view of the results of this experiment Mr. Gilchrist recommends the use of poison where practicable in jack-rabbit control operations, and the use of 22 caliber rifles where poisoning would be dangerous to livestock.

Forage Increases in Kansas After Prairie-Dog Eradication.--A. E. Oman, leader of rodent control in Kansas, makes the statement that as a result of a 5-year program for the eradication of prairie dogs, 150,000 acres of land in Kansas have been reclaimed for stock

raising. He states that the grazing requirements for cattle in Kansas is from 2 to 16 acres of range land a head, and on the basis of an average of $7\frac{1}{2}$ acres a head, the reclaiming of 150,000 acres of prairie-dog infested land would make available additional forage for 20,000 head of cattle annually.

Rats Destroy Valuable Seeds.—According to L. C. Whitehead, leader of rodent control in Texas, a nurseryman of that State succeeded after three years work in obtaining 350 seeds of a new orange that has been developed by the United States Department of Agriculture. These were planted in a hotbed, but during the first night all were destroyed by rats that were driven to shelter by a heavy rain.

Landing Made Safe for Airplanes.—A heavy infestation of pocket gophers at the John Gardner Airport, at Palestine, Tex., made the landing of airplanes hazardous. John A. Spencer, assistant in the Texas district, recently spent a day at the airport giving instructions on setting traps for capturing these rodents, and in that time caught 44. Since then the airport has been free of pocket gophers and the hazard in landing airplanes has been removed.

Cross Between Coyote and Dog.—C. R. Landon, leader of predatory animal control in Texas, reports that in April Hunter Wimberley caught a female coyote that was carrying three pups. Mr. Wimberley stated that he believed these pups were half dog, as all had white feet one had white ears, and one had a white spot on its neck, which is not normal coloration in coyote pups.

Porcupine Damage in South Dakota.—Louis Knowles, leader in the South Dakota district, recently received a letter from the supervisor of the Custer National Forest, from which the following is quoted:

"I have just returned from a field trip in that locality [Harding County], and on both the Cave Hills and Slim Buttes there is an enormous amount of damage being done by porcupines. This damage is so much more marked this year than heretofore that it seems that control measures are urgent. * * * My last inspection indicates the urgency and need for control measures and I am wondering if it will be possible for the Bureau to undertake control measures in the immediate future. The damage appears to be largely the result of last year's infestation. At this time of the year the porcupines apparently are not feeding upon the pine. I noticed many cases where old mature trees were entirely barked in their upper branches and around the upper bole."

Notorious Wolf Captured.—C. R. Landon, leader of predatory-animal control in Texas, quotes in part from an interesting letter from Hunter E. T. Personett, who is working in Coryell County, relative to the taking of a destructive wolf:

"Yesterday I got 'grandma' and six pups, four females and two males. This wolf had been caught at least once in a small trap, held several hours, and finally ensnared the drag while going at high speed, pulling a foot free from the trap.

"I talked with a trapper who had caught the wolf in January, 1927. I was freely told that I could not get her. Messrs. Hobbs and Cooper spent from one to two months each on her and her mate. Her mate was my first victim here, yet rain at that time, plus dogs, stopped any chance for her then. She constantly changed range, seldom going twice over the same place. I had her over four traps, each time missing her by $\frac{1}{2}$ " to 1". Yet I stayed. She would move her pups so fast that it was with difficulty that I could follow her.

"I had at times a chance to shoot a pup, but I would be no nearer her capture by doing so. I wanted to take a couple of the pups alive, and then to catch, kill, or destroy the rest. Last Sunday the time arrived. We caught two of the young wolves and shot two, but she drifted clear out of her range with the two pups she still had. Monday we caught one more. Monday night I trapped the remaining pup at the place where I had tied the others down; did it by dogging her out of the range. I stayed there until dark to keep the old one away. It worked. The loose puppy came to the others. Before the old one could get it away, I tied them all down and placed traps around them. The old wolf came to them, got in three traps, gnawed off one foot, broke one of the remaining legs, and killed or maimed the pups.

"This wolf is known by sheep and poultry raisers to be eight or more years old. She is reported to have killed as many as 18 turkeys a day. She destroyed 22 sheep in one day, and 32 in two days. One man lost 25 sheep through her depredations, and many ranchmen here had to abandon the raising of sheep and turkeys on account of her. Since January first she is known to have taken 50 sheep and 150 chickens and turkeys and how many more of each is left to the imagination. Last Saturday, May 18, she killed seven sheep and three chickens. You can appreciate the ranch people's horror when she was known to be drifting their way on her 35-mile range."

Personally Tests Red Squill.---C. D. Schwartz, of the Eastern Rodent Control district stationed at Raleigh, N. C., has conducted numerous successful rat campaigns using powdered red squill. His confidence in the harmlessness of red squill to animal life other than rats must be great, as he recently reported having eaten 5 ounces of a 1 to 16 red-squill cereal bait--enough to kill about 50 good-sized rats. He states that this quantity did not even make him sick, but he is emphatic in asserting that to him the taste of the bait was "rotten."

Cattle Growers' President Takes Lead in Range Improvement Practices.---One of the most constructive pieces of range improvement work in the State of Arizona is being carried out by the president of the Arizona Cattle Growers' Association on his range west of Willcox, according to D. A. Gilchrist, leader of rodent control in the Arizona district.

A survey of the range was made by the owner and it was found that kangaroo rats were taking about 50 per cent of the grass on several thousand acres of choice grazing lands. Upon request, Isaac Rogers, one of Mr. Gilchrist's assistants, gave a small demonstration at the ranch and proved that the kangaroo rats could be eradicated with poisoned grain at a cost of 4 cents an acre. A cowboy belonging to the ranch was then taught how to mix and distribute the poisoned grain, and the owner of the property was aided in getting in touch with several wholesale chemical houses where he could purchase a supply of poison materials at a low cost. One cowboy now devotes his entire time to the poisoning of kangaroo rats on that range, distributing the poisoned grain from a saddle horse, and killing several thousand rats each day.

The results of the work are so evident that two neighboring ranchers wish to employ the kangaroo rat man to poison their ranges. The good example set in range improvement is proving profitable to the entire community.

Efficiency of Systematic Control Work.---A striking example of the efficiency of systematic control of ground squirrels was recently shown in Lincoln County, Wyo., where previous to systematic measures begun in 1924, a unit of 35,000 acres of irrigated land was

sustaining an annual loss of approximately \$25,000. One canal company alone spent \$1,000 a year in repairing breaks in the ditch banks caused by ground-squirrel burrows. In 1924, the area was covered by county poisoning crews under the supervision of the Biological Survey, at a cost of 7 cents an acre. Each subsequent year the ground was retreated at diminishing costs, until in 1928, patrol work was done over the area at a cost of 1 cent an acre. In May, 1929, Assistant C. C. Skinner with a crew of three men again covered the unit, poisoning all areas necessary over 29,133 acres, at a total cost of \$275.02, or less than 1 cent an acre. Damage by ground squirrels has entirely ceased, and no loss in crops has been reported for two years. The old burrows in the ditch banks have filled and are causing no trouble. The entire cost is now less than was the poison cost alone when the ranchers were doing their own work and suffering \$25,000 annual loss.

May was a record month for catches by the regular hunters in Wyoming. An average force of 34 hunters took 747 coyotes, 17 bobcats, and 26 badgers, or an average of 23½ animals for each hunter. The hunters having the highest records for the month are: Lawrence Cheney, 66; Dan Nolan, 53; Oliver Robinson, 47; Ervin Smith, 40; Roy Henderson and James McClure, each 43; and Del Dearth, 35. Several others made good catches.

Appointment.--Miss Irene James has been appointed stenographer in the Cheyenne, Wyo., office, effective July 1.

GAME AND BIRD CONSERVATION

Visits Game in New England.--Mr. Sheldon spent the last two weeks of June in the New England States, where he conferred with State and Federal game officials in connection with the administration of the migratory-bird treaty and Lacey acts.

Inspects Motorboats.--W. R. Dillon spent several days during the latter part of May in New Jersey with Game Protector Albert Stadlmeir inspecting the motorboats Brant and Plover and making arrangements to install a new engine in the latter.

Name of Motorboat Changed.--The name of the motorboat of which Game Protector O. D. Steele, Cambridge, Md., has charge, has been changed from Canvasback to Killdeer, because the State patrol boat of Maryland bears the name Canvasback.

New Dam for Wind Cave Preserve.--A. Lincoln Fellows, senior irrigation engineer of the Bureau of Public Roads, has been assigned by that bureau to supervise the construction of an earthen dam at the Wind Cave National Game Preserve, S. Dak., at the request of the Survey. The construction of the dam over Cold Springs Creek, as authorized by an item of \$30,000 in the 1929 appropriation, will increase the water supply at the preserve by forming a small lake just east of the reservation headquarters.

Big Game in New Pasture at Wind Cave.--Eighty-six buffalo--63 cows, 12 bulls, and 11 calves--were turned into the new east pasture on May 11, and the rest of the herd, consisting of 71, mostly yearlings and two-year-olds, were culled out and turned back into the west pasture for disposal during the next two years.

Surplus Animals Disposed of at Bison Range.--In all, 594 surplus animals have been removed from the National Bison Range, Mont., since July 1, 1928, as follows: 151 buffalo, 427 elk, and 16 mule deer.

Wild Ducks on Lake Winona.--The flock of wild ducks maintained on Lake Winona on the Upper Mississippi River Wild Life Refuge is reported to be increasing. In the "duck

pasture" more than 20 nests were recently found, and the ducks were bringing off the young ones successfully. One mallard hen hatched a brood of 16. A number of other mallards have also brought off their broods, none of them so far numbering less than 12 ducklings.

Elk Refuge Notes.--Protector Almer P. Nelson reports that during the last week in May about 50 elk were still on the refuge but that most of the animals had migrated north to their summer range on the Teton State Game Preserve. Up to June 3, the weather in this locality had been cold for the greater part of the time, with the temperature at night below freezing, and on May 26 about 1 inch of snow fell. State Game and Fish Commissioner Bruce Nowlin visited the refuge on May 30 and 31.

Sullys Hill Notes.--Two buffalo, four antelope (two pairs of twins), and (it is estimated) five elk were born at Sullys Hill Game Preserve. N. Dak., during May. Ten young Canada geese have been hatched there and are reported to be thriving. Ray Gaskill, veterinarian of the Bureau of Animal Industry, visited this preserve on May 6. There were 1,832 other visitors during the month, with 358 cars.

Inspects Stump Lake and Chase Lake Bird Refuges.--Protector Wesley D. Parker visited Stump Lake Refuge, N. Dak., on May 12, when he estimated that there were 2,000 California gulls and 2,000 Franklin's gulls on the north island, as well as a number of ducks at other points on the refuge. Mr. Parker visited Chase Lake Refuge, N. Dak., on May 22 and 23, and reports about 200 gulls, 300 pelicans, and 300 ducks.

Pelicans at North Platte.--For about one week during the early part of May approximately 60 pelicans were seen on the lakes within North Platte Bird Refuge, Nebr. These birds are seldom observed in that locality.

Personnel.--Miss K. Esther Largent, clerk-stenographer at the National Bison Range, Mont., has resigned.

Charles I. Park has been appointed to protect the birds at Tortugas Keys Bird Refuge, Fla., during the nesting season.

Visiting National Parks.--Dr. T. S. Palmer is making an extended trip through the West. He expects to visit his old home in California and several of the national parks, including the Grand Canyon, Yosemite, Mount Rainier, and Yellowstone. He expects to return about the middle of July.

Virginia Warden Acquitted.--The case against State Game Warden A. Floyd Mercer for the killing of two game-law violators in the Back Bay region of Virginia on February 4, 1927, was brought to a close in corporation court at Norfolk, Va., on June 12 by acquittal. This was the third jury trial in the case, the first resulting in a conviction and the second in a nonagreement. It is hoped that the cases against U. S. Game Protector W. L. Birsch and State Warden John T. Capps, jointly indicted with Mercer, which have not yet been tried, will be nolle prossed.

The wardens were sent to Back Bay, Va., as a result of numerous complaints of night shooting and shooting after the close of the waterfowl season. Shortly after dark on February 4, 1927, they came upon three men who had been shooting and who had just left the marsh. The testimony of the wardens showed that the hunters opened fire on them, which was returned by the wardens, resulting in the death of two of the hunters. Special counsel was employed by the State to assist the Commonwealth's attorney in the prosecution of the

case; the wardens were defended by the United States District Attorney and their personal counsel. Talbott Denmead, assistant United States game conservation officer, was present at the trial and testified for the wardens.

Alaska Continues Stocking with Fur and Game Animals.--Reports to the Survey are to the effect that the program of stocking lands of Alaska with valuable furbearing and game animals, which was adopted by the Territorial Legislature in 1925, is being continued under an appropriation of \$7,500 made available to the Alaska Game Commission by the 1929 legislature. These funds were authorized to be used for planting marmots and blue grouse on Prince of Wales Island, beavers in the Upper Tanana Valley, Siberian blue squirrels on Seward Peninsula, and reindeer on Unalaska Island.

Under an appropriation of \$10,000 in 1925, when the stocking program was inaugurated, several projects were authorized, some of which have already met with success, including the introduction of beavers and muskrats on the Kodiak-Afognak group of islands, where they do not occur naturally, and elk on Kruzof Island. In 1927 the legislature appropriated an additional \$10,000 for carrying on the program and added three more projects: Introducing mountain goats in Southeastern Alaska, elk and deer in the Tanana Valley, and buffalo in interior Alaska.

Of the 19 buffalo introduced in the Delta region about a year ago, one died shortly after liberation from injuries received during shipment, and one other was missing when a recent count was made, though it may have been back in the brush and out of sight. The others survived the winter in fine condition, and though it was considered unusually severe, they traveled only 30 or 40 miles from the place where liberated.

Illinois Violators Convicted.--Thirty-four migratory-bird treaty act cases were terminated in Federal court at Chicago, Ill., on May 20 and 21 with fines totaling \$1,075 ranging in amounts from \$25 to \$75. The offenses involved killing protected species, possessing insectivorous birds, and possessing ducks in storage during the close season.

Airplane Hunters Plead Guilty.--The number of convictions under the migratory-bird treaty act for killing migratory waterfowl from an airplane was increased to 17 by the recent termination of two cases in Federal court for the district of South Dakota. The defendants were fined \$25 each. The evidence was obtained by Federal Deputy Hawley.

Corporation Fined For Violation.--A case against an ice-cream corporation at Chicago Ill., involving possession of a large number of wild ducks in cold storage during the close season was terminated June 12 by a \$200 fine. Federal Protector Roahen submitted the evidence.

Bird Reservation Trespass Cases.--Two persons charged with hunting on Big Lake Reservation Ark., during November, 1928, in violation of Section 84 of the Penal Code, and arraigned in Federal court at Little Rock, Ark., on May 6, 1929, entered pleas of guilty and were fined \$10 each. United States Game Protector Riddick furnished the evidence in connection with these violations.

Fined for Illegal Traffic in Beaver Skins.--Protector B. E. Smith is still continuing investigations in Maine regarding the illegal traffic in beaver skins. Ten persons were prosecuted in State court during May, and fines aggregating \$1,600, and costs of \$139, imposed. In addition 14 beaver skins were confiscated.

Checking Fur Records.--The time for the semiannual examination of the records of raw fur receiving houses is at hand. Protectors Barmeier, Mrovka, Perry, and Roahen are now engaged on this work, and Protectors Farnham and Stadlmeir have concluded their investigations.

Unlawful Fishing Brings Fine.--After an all-night vigil, Rangers Lundberg and Hall, of the Upper Mississippi River Refuge, were successful in apprehending a commercial fisherman near Brownsville, Minn., netting bass and pickerel and fishing during the close season and without a State license. This offender was arraigned in State court, sentenced to pay a fine of \$100 and costs of \$16, and, in addition, required to serve 90 days in the county jail. A new outboard motor, fishing equipment, and 157 pounds of undressed fish were turned over to the State.

Manual for Protectors Revised.--The Manual of Instructions for the guidance of United States Game Protectors has recently been revised and contains a number of important changes and additions. A subject index has also been prepared to facilitate use. It will be issued within a few weeks and a copy sent to each Protector.

Treaty-Act Cases Terminated--Reports Received during May

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Blackwell*	2	Illinois	Killing and possessing grebes	\$50 each
Geiseler*	1	"	Killing woodpeckers	\$50
Geiseler*,Scholler*	1	"	Killing a bitten	\$25
Hawley*	2	South Dakota	Hunting and killing geese from an airplane	\$25 each
Jans*	1	Illinois	Possessing golden plovers	\$75
"	1	"	Possessing golden plovers	\$25
"	1	"	Possessing a plover and a sand-piper	\$50
"	1	"	Possessing a duck in close season	\$25
"	2	"	Possessing a catird	\$25 each
"	1	"	Possessing a robin	\$25
Perry,Concannon*, Van Gaasbeek*, Smith**	7	Kansas	Possessing ducks in storage in close season	\$5 each
Peterson*	1	Illinois	Killing a grebe	\$50
"	1	"	Killing a grebe	\$25
Roahen	1	"	Possessing ducks in storage in close season	\$200
"	1	"	Possessing a goose and ducks in storage in close season	\$25
"	5	"	Hunting ducks in close season	\$25 each
"	6	"	Possessing ducks in storage in close season	\$25 each
"	1	"	Hunting and possessing wood ducks	\$20 and costs of \$35
"	1	"	Hunting and possessing wood ducks	\$15 and costs of \$35

Treaty-Act Cases Terminated--Reports Received during May--Continued

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Roahen	1	Illinois	Possessing a wood duck	\$15
"	1	"	Possessing a wood duck	\$15 and costs of \$35
"	1	"	Killing and possessing a wood duck	\$15 and costs of \$35
"	1	"	Shooting at coots from a motor boat	\$15 and costs
"	1	"	Hunting ducks in close season	\$10 and costs of \$35
"	1	Missouri	Possessing ducks in storage in close season	\$50
Roahen,Scholler*	5	Illinois	Possessing ducks in storage in close season	\$25 each
" "	1	"	Possessing ducks in storage in close season	\$50
Roahen,Shaver	2	"	Shooting and possessing wood ducks	\$15 and costs of \$35 each
Rogalla**	1	Minnesota	Killing a bittern	\$10
Scholler*	1	Illinois	Shooting at and attempting to kill grebes	\$50
"	2	"	Possessing ducks in storage in close season	\$25 each
Scholler*,Jans*	1	"	Killing a woodpecker	\$25
Scholler*,Peterson*	1	"	Possessing a wood duck	\$25
" "	2	"	Killing coots from a motor boat	\$25 each
" "	1	"	Killing coots from a motor boat	\$50
" "	1	"	Hunting coots from a motor boat	\$50
Shaver,Harris*	1	"	Selling ducks	\$25 and costs of \$35
Anderson**				
Shaver,Moore**	1	Minnesota	Killing ducks after sunset	\$10
Shaver,Rogalla*	2	"	Shooting a bittern	\$10 each
Shaver,Rogalla*, Moore**	1	"	Selling coots	\$100
Shaver,Vogel*	1	"	Selling ducks	\$50 and costs of \$10
" "	1	"	Selling ducks	\$25 and costs of \$10
" "	3	"	Offering for sale and selling ducks	\$50 and costs of \$10 each
Shaver,Watters**	2	"	Hunting ducks after sunset	\$10 and costs of \$10 each
Stadlmeir	2	New Jersey	Hunting ducks after sunset	Sentence sus- pended on six months probation

*U. S. Deputy Game Warden.

**Deputy State Game Warden.

Treaty-Act Cases Terminated--Reports Recivied during May--Continued

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Stadlmeir, Pierce*, Hall**	1	New Jersey	Hunting ducks after sunset	\$10
Steele	1	Kansas	Killing sandpipers and yellowlegs	\$5
"	1	"	Selling ducks	\$5
Steele, Nill*	1	"	Hunting plovers, possessing yellowlegs	\$5
" "	1	"	Hunting ducks after sunset	\$5
" "	1	"	Killing a gull	\$5
Tonkin	1	California	Hunting ducks after sunset	\$1

Treaty-Act Cases Reported for Prosecution

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Eckert*	9	Massachusetts	Hunting ducks after sunset
Harris*	3	Arkansas	Killing ducks before half hour of sunrise
Harris*, DeWitt**, Janeson**	2	"	Killing ducks after sunset
Harris*, DeWitt**, Janeson**	3	"	Hunting ducks after sunset
Linebaugh	3	Tennessee	Possessing ducks in storage in close season
McCulloch*	2	California	Hunting ducks before half hour of sunrise
Mrovka, Adams*	3	Missouri	Hunting and killing ducks in close season
" "	4	"	Killing and possessing a duck in close season
" "	1	"	Shooting at and wounding a duck in close season
" "	1	"	Killing and possessing a mourning dove and a duck in close season
" "	2	"	Hunting geese in close season
Roahen	1	Illinois	Hunting and possessing a duck in close season
Roahen, Byam**	6	"	Hunting ducks in close season
" "	2	"	Hunting and possessing a duck in close season
Scholler*	1	"	Possessing ducks in storage in close season
Shaver	3	Minnesota	Possessing ducks in storage in close season
Shaver, Lundberg*, Hall*	1	"	Possessing insectivorous birds
Whitehead	2	South Carolina	Hunting ducks after sunset
Whitehead, Smith**	1	" "	Hunting ducks after sunset

*U. S. Deputy Game Warden.

**Deputy State Game Warden.

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Vol. 10

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No. 7

"Nothing is more obvious in modern life than that science has been the progenitor of industry. The colossal expansion in useful productiveness, and the development of ever-widening groups of alternative tasks in which labor may engage, and thus keep employment at a high ebb, ties on to science. * * * Agriculture is entitled to a research institution in keeping with its fifty-billion-dollar investment in farm lands and equipment. Such an institution, properly financed and adequately manned, could confidently be expected to contribute as largely to agricultural progress as similar research has done in industrial fields. * * *

"The Department heretofore has encountered one serious difficulty in its effort to put fundamental farm research on a par with research for industry. This difficulty lies in the fact that our technical men have not been allowed to make their own program. * * * Under the present item-by-item appropriation system more than twelve months must elapse between the drawing up of a proposed plan of research attack and the funds becoming available for the pursuit of the work. * * * A lump sum appropriated for fundamental research, available until expended, would solve this difficulty. It would also allow a line of study to go forward uninterruptedly even though radical changes of plans in the pursuit of the study become necessary. * * *

"Agricultural research can lose nothing by contact with that resistless spirit of study which characterizes the research departments of our great corporations--a spirit which never takes no for an answer. * * *

"To a larger extent, the attention of this administration will be directed to strengthening and fostering basic research. We hope thereby to give the American farmer directly and quickly all that the highly organized divisions of modern science can devise for his benefit, and at the same time study more closely the natural laws pertaining to living forms."

---SECRETARY HYDE, in The Country Gentleman, August, 1929.

GENERAL NOTES

On Extended Field Trip.--Mr. Redington left Washington on July 10 for an extended trip of about 4 months through the West that will put him in contact with most of the districts in which predatory-animal and rodent control operations are conducted. He is accompanied by Stanley P. Young, of the Division of Predatory-Animal and Rodent Control. The itinerary included also the Elk Refuge, Wyo.; Niobrara Reservation, Nebr.; the Bison Range, Mont.; Bear River Migratory-Bird Refuge, Utah; and the U. S. Rabbit Experiment Station, Fontana, Calif. Mr. Redington plans also to confer with State game commissions and United States game protectors regarding game conditions in the West.

Visitors.--Tappan Gregory, conservationist and mammal photographer, of Chicago, Ill., on June 25, and Seigo Shibata, expert of the Imperial Zootechnical Experiment Station at Chiba-shi, Japan, on July 18, visited offices of the Bureau.

Members of a committee representing the Virginia Department of Game and Inland Fisheries and officials of the Virginia State Fair visited the Bureau on July 17 in reference to an exhibit to be conducted in cooperation with the Survey at the State Fair at Richmond, Va., in October.

Sympathy is extended to W. D. Hobbs, in charge of the Office of Mails and Files, in the death of his Mother, which occurred at Bentonville, Ark., on July 31.

Official Publications.--The following official publications of the Biological Survey were issued during the month:

"Open Seasons for Game, 1929-30," Poster No. 48 (Bi). Compiled by Frank L. Earnshaw and Frank G. Grimes. Received July 11.

"Acquisition of Land by Purchase, Gift, or Lease under the Migratory-Bird Conservation Act of February 18, 1929," Bi-1018 (revised). 6 P. Received July 11.

"Directory of Field Activities of the Bureau of Biological Survey," Miscellaneous Publication No. 49-M. 38 p., map. Received July 12.

Give Radio Talks.--Mr. Redington gave a talk on "Conserving our Natural Resources in Wild Life" over Station KMOX at St. Louis, Mo., on July 12. Mr. Henderson on July 17 spoke on "The Biological Survey and the Man Out-of-Doors" in the Department's National Farm and Home Hour program broadcast over a network of 31 stations associated with the National Broadcasting Company.

BIOLOGICAL INVESTIGATIONS

To Study Warble and Nose Flies in Alaska.--A project agreement providing for cooperation between the Bureaus of Biological Survey and Entomology and the Territory of Alaska through the Governor has just been completed whereby a study is to be made of the life history and habits of the warble flies, nose flies, and other injurious insects in their relation to reindeer production, looking to development of effective methods for control. The Biological Survey has made arrangements with the Bureau of Entomology for the detail of one of its qualified men, Dr. W. E. Dove, to undertake this study in Alaska, and he is now engaged upon the work. Studies will be conducted in cooperation with the Reindeer Experiment Station at College, Alaska, and the Sub-experiment Station at Nome, and with reindeer owners with whom the Bureau has been cooperating. The Alaska Legislature near the close of its recent session appropriated \$10,000 to be used under the direction of the Governor to cooperate in the study.

Ten-Year Index to the Auk Issued.--The ten-year index to the Auk, covering volumes 28 to 37, which were published during the period from 1911 to 1920, has just been issued by the American Ornithologists' Union. This will be an invaluable aid to ornithologists and bird students who have occasion to consult these repositories of bird lore. It was prepared largely from the geographic-distribution files of this Division, the members of a committee appointed by Dr. Alexander Wetmore, president of the Union, undertaking responsibility for different volumes. The following members of the Bureau were on this committee: A. H. Howell, E. R. Kalmbach, F. C. Lincoln, W. L. McAtee, and C. C. Sperry. After each member had prepared the material for his volume, the whole was put together and cross-indexed by Miss May T. Cooke, who, with Dr. T. S. Palmer, secretary of the Union, assumed the editorial labors. The index is similar in plan to those issued in 1907 and 1915.

and contains titles of papers, listed under authors, and references to the common and scientific names of species by localities, such as States and foreign countries. An index list of authors under localities is included, and synonyms are cross-indexed.

Banner Year for Bird-Banding.--During the fiscal year 1929 the Survey bought and issued 249,000 bands, and the total number of birds banded and reported was 133,884. It is not possible at this time to state the total number of return records received during the year, because several thousands of these must be copied from schedules, but it is estimated that at least 8,000 sets of return-record data accumulated. The number reported by letter alone was nearly 4,000.

Attends Nature-Study Camp.--Doctor Bell spent June 27 to 29 near Terra Alta, W. Va., at the camp of the Training School of Oglebay Park, W. Va., where he accompanied the members of the school on a three-day camping trip, which closed a two weeks' course in nature study. The party consisted chiefly of leaders of nature-study work in the public schools or in the work of 4-H clubs and boy and girl scout movements, and the purpose of the field trip was to familiarize those in attendance with the geological features and the plant and animal life of the region. Doctor Bell discussed the work of the Biological Survey at evening meetings about the camp fire and, together with other specialists, aided the field party while on drives and hikes by pointing out and discussing features of interest in the natural history of the locality.

Vacations.--E. A. Preble is spending his vacation at his boyhood home in northern New Hampshire. Miss Pauline Johnson is visiting her parents in Ohio. Mrs. Jane S. Elliott has just returned from a trip to the Bermuda Islands made in company with her daughter, and reports a delightful ocean voyage and most interesting experiences during the time spent among the attractions of the islands.

Promoted to Captain.--F. C. Lincoln, in charge of the bird-banding project, has received notice of his commission as captain in the Signal Corps (Reserves) of the Army effective July 20. This is a promotion from the rank of first lieutenant, which he has held for the past four years. Mr. Lincoln was connected with the Signal Corps during the World War.

Appointed Clerk.--Allen J. Duvall was transferred from the Secretary's Office to this Division on July 8 to assist in clerical work connected with the waterfowl censuses.

Reassigned to Biological Investigations.--Dr. Walter P. Taylor, of the Tucson, Ariz., office, since November, 1928, assigned to the Division of Food Habits Research, has been reassigned to the Division of Biological Investigations effective July 1. He will continue the study of biological problems in Arizona in cooperation with the University of Arizona, the Carnegie Institution of Washington, and the Forest Service.

Continues Study in Grand Canyon.--Vernon Bailey reports interesting results as he continues a study of the life zones and fauna of the Grand Canyon region. He recently joined a party of students from the University of Arizona under the leadership of the president of that institution, pointing out to them in the field some of the interesting features of his study, and at a camp-fire meeting discussed the work of the Biological Survey and the natural-history problems of the region.

Takes Pictures of Elk.--O. J. Murie is continuing his studies of the southern elk herd in the vicinity of Jackson Hole, Wyo., and has made many interesting observations that tend to confirm his previous findings regarding the occurrence of disease among these animals. Some noteworthy still and motion pictures illustrative of the life history of these and other animals and birds of the region were taken by him.

More Reindeer for Experiment Station.--L. J. Palmer began an extended trip down the Yukon River during June to secure additional reindeer for use in the experimental work at the Reindeer Experiment Station at College, Alaska, of which he is in charge.

Jordan's Manual of Vertebrates Revised.--Of interest to members of the Biological Survey staff is a recent publication entitled "Manual of the Vertebrate Animals of the Northeastern United States," by Dr. David Starr Jordan. This is the thirteenth edition of this work, which has been completely revised and enlarged with illustrations. The author expresses his appreciation for the assistance rendered by Dr. Harry C. Oberholser and Dr. H. H. T. Jackson in verifying statements and correcting proof sheets where necessary in order to bring the accounts of the birds and mammals in line with the most recent researches.

FOOD HABITS RESEARCH

Progress of Surveys of Proposed Refuge Sites.--Progress is being made by the parties surveying the food resources of proposed migratory-bird refuge sites. The eastern crew, consisting of Neil Hotchkiss and Leonard E. Ekvall, has been working in North Carolina, Virginia, and Maryland; the middle western party, including F. M. Uhler and Fred A. Warren, has been engaged in the States of Kansas, Nebraska, South Dakota, and Minnesota; and the western one, with Charles C. Sperry and A. C. Martin, in Colorado, New Mexico, Utah, and Montana.

Cooperative Quail Study Completed.--Now that the Cooperative Quail Investigation in southern Georgia and northern Florida has been completed, all property acquired during the course of it has either been disposed of by sale, the proceeds to revert to the balance of the quail fund, or brought to Washington for incorporation in the equipment of the Food Habits laboratory. Of the employees engaged in the quail investigation, Charles O. Handley is now working for the Department of Game and Inland Fisheries of Virginia, and Herbert L. Stoddard, leader, has been appointed cooperative agent with headquarters temporarily in Washington. Mr. Stoddard will be engaged for the present in the completion of the final report, and as soon as practicable will proceed with his new work, the main item of which will be the supervision of further cooperative studies of quail, ruffed grouse, and perhaps other species to determine the best methods of increasing their numbers.

FUR RESOURCES

Returns from Rabbit Experiment Station.--Mr. Ashbrook returned to Washington on July 6 after spending the month of June at the U. S. Rabbit Experiment Station, at Fontana, Calif. He states that John W. Meyer has the work well organized and is conducting five major experiments in breeding, feeding, and handling rabbits. Mr. Meyer has expanded the work to include many more animals than it was originally planned to have, and through his efforts rabbit breeders in general have learned to appreciate more thoroughly the work at the station. During Mr. Ashbrook's visit a banquet was given to celebrate the first anniversary of the establishment of the station, at which 150 rabbit breeders of southern California and civic leaders of the surrounding communities were present. A telegram of greetings from Mr. Redington was read and addresses were made by both Mr. Ashbrook and Mr. Meyer.

Studying Fur-Animal Diseases on Ranches.--Dr. Earle T. Dewey has been engaged in conducting experimental work in diseases of fur animals at ranches in Pequot, Minn., and in the vicinity of Thiensville, Wis. He is also making an examination of specimens of diseased rabbits sent from California.

Pre-Showing of Fox Film.--The film entitled "How to Handle Foxes" was shown in the Department's Motion Picture Laboratory on July 3. This picture, the purpose of which is to acquaint veterinarians with the best methods of handling foxes for treatment, was taken at the U. S. Fur-Animal Experiment Station, at Saratoga Springs, N. Y. Members of the Survey, the Extension Service, and the Bureau of Animal Industry were present at the showing.

Attends Veterinarians' Meetings.--Dr. J. E. Shillinger left Washington early in July for Missoula, Mont., where on July 8 and 9 he attended a meeting of the Montana Veterinary Medical Association and read a paper on fur-animal diseases. From there he went to Vancouver British Columbia, to attend a joint meeting of the Oregon, Washington, and British Columbia Veterinary Medical Associations, held July 15 to 17. He read two papers, "The Veterinarian and the Silver-Fox Industry" and "Diseases and Parasites of Silver Foxes with Appropriate Treatments." These were followed by the motion picture, "How to Handle Foxes." En route to the West he visited the University of Minnesota and conferred with Doctor Dewey concerning the cooperative fur-animal disease project. At the request of the Department of the Interior, on his return from Vancouver, he inspected muskrat areas on the Crow, Flathead, and Turtle Mountain Indian Reservations, North Dakota.

Studies Outbreak of Diseases.--Dr. Karl B. Hanson spent the week beginning July 7 at Boonville, N. Y., where he aided in controlling an outbreak of disease among foxes, and collected specimens, which were sent to Doctor Dewey, at Minneapolis, Minn., for examination.

Catnip Harvested.--The catnip crop at the Fur-Animal Experiment Station was harvested during the latter part of July. The Division of Predatory-Animal and Rodent Control has arranged for Dr. James W. Kelly, of the Bureau of Plant Industry, to go to Saratoga Springs to superintend the distilling of the catnip oil.

More Minks at Fur-Animal Station.--Three minks, a male and two females, have been added to the stock at the Fur-Animal Experiment Station. The badgers recently brought there are proving of much interest to visitors. Many fur farmers are interested in introducing badgers on their ranches.

PREDATORY-ANIMAL AND RODENT CONTROL

Alaska Provides Funds for Predatory-Animal Control.--An emergency appropriation of \$30,000 for suppressing predatory animals in Alaska was recently made by the Territorial Legislature because of the increasing numbers and depredations of coyotes and wolves there. The measure also authorized the employment of two leaders of the work, these men to be trained and recognized by the Department of Agriculture as experts in the suppression of predatory animals, and, to carry on control operations under the direction of these leaders, four hunters and trappers.

This legislation followed the cooperative investigation made by R. K. Stewart (whose report was reviewed in the April, 1929, SURVEY), which demonstrated that the predatory-animal situation in Alaska is rapidly becoming acute, particularly because of the phenomenal increase and spread of the coyote. Coyotes now are found in large numbers throughout the eastern portion of the Territory and have drifted westward to the Kenai Peninsula, to the headwaters of the Kuskokwim, and to the reindeer-grazing areas near Norton Bay.

Investigations have shown that coyotes are preying heavily on the fur bearers and on the caribou of Alaska, have entered the ranges of the mountain sheep, where they are killing great numbers of these big-game animals, and are destroying migratory birds on breeding grounds on the Upper Tanana and Yukon Rivers. They are now within a few hundred miles of the breeding grounds of the Yukon Delta.

In many cases, families or entire colonies of foxes are run out of their dens and killed by coyotes, which then use the dens themselves. Local trappers have noted with dismay that the advance of coyotes is marked by a decrease in the number of foxes.

Wolves also are steadily increasing in Alaska, although somewhat more slowly than coyotes. In the Mount McKinley National Park they have recently commenced to kill game animals, with the result that the latter are becoming wilder and not so easily approached by park visitors. During the past winter five wolves killed more than 500 reindeer near Unalakleet. The owner of a herd of several thousand reindeer that range on the tundra on the mainland near St. Michael reported that during the winter of 1927-28 two wolves killed approximately 200 reindeer, 40 of these within a period of a few days.

Former Hunter To Be Detailed to Alaska as Assistant.---H. H. Gubser, who has been employed as predatory-animal hunter in the Oregon district for several years, was appointed assistant predatory-animal leader, effective July 1, and has been detailed to assist Stanley G. Jewett in the Oregon district for a period of about two months, familiarizing himself with the operations of the district office and other routine in preparation for predatory-animal operations in Alaska. It is planned to transfer Mr. Gubser to Alaska about September 1, in connection with the cooperative predatory-animal project between the Bureau and the Territory.

Moore Transferred to Mississippi.---Roy Moore, formerly assistant leader of rodent control in Kansas, was transferred to Mississippi in time to begin operations in rodent control in that district on July 1. He will be leader of the sub-district covering Mississippi, Alabama, and Louisiana, working under the direction of James Silver, leader in the Eastern district.

Losses in Livestock Checked in Oklahoma and Arkansas.---John C. Gatlin, leader of predatory-animal control in the Oklahoma-Arkansas district, reports that according to information received from farmers and stockmen the wolves taken by Survey hunters since control operations began in that district in August, 1928, had been responsible for the loss of 1,355 hogs, 484 goats, 69 calves, 830 turkeys, and 150 chickens, valued at about \$20,000. Letters received from stock owners in these States indicate that losses from predatory animals have greatly diminished in localities where control operations have been conducted.

Wolves Are Fire Hazard.---It is not often that wolves are the direct or indirect cause of forest fires. The forest supervisor of the Ozark National Forest in Arkansas, however, has informed Mr. Gatlin that farmers and stockmen were setting fire to the forest in order to destroy the undergrowth, as it formed a harbor for wolves. Mr. Gatlin reports that a hunter was assigned to this area, and no doubt another fire hazard has been eliminated by the taking of a number of wolves from this section.

Marketing of Jack-Rabbit Skins Profitable.---According to reports received from the rodent-control districts, more than 8,000,000 jack-rabbit skins, selling for approximately \$2,000,000, were marketed during the past fur season. The assistance rendered by field men of the division in finding a market for wild-rabbit skins and giving instructions as to their preparation for marketing has to a large extent been responsible for this profitable return. Extensive operations along this line have been carried on during the season in Arizona, Colorado, Idaho, Kansas, Montana, Oregon, South Dakota, Utah, Washington, and Wyoming. If a profitable price can be maintained for the skins, it will be of material assistance in jack-rabbit control.

Big Mountain Lion Taken.--L. L. Laythe, leader of predatory-animal control in Colorado, states that during the early part of June mountain lions were reported to be killing sheep on the range 10 or 15 miles southwest of Durango, Colo. In all, approximately 150 sheep and 7 or 8 head of cattle were destroyed. These killings continued for a period of three weeks before the district office at Denver was notified, and in this time local hunters were trying to capture the mountain lions for bounty. As soon as notice of the depredations was received by the Denver office, a hunting outfit was sent to that locality. Attempts to trail the mountain lions with dogs proved unsuccessful because of the dryness of the country. Traps were then placed and on June 19 Hunter Markle succeeded in trapping a big male mountain lion that had been unsuccessfully trailed by local hunters for a number of years.

66,038 Pocket-Gopher Tails in One Picture.--Among the photographs accompanying the annual reports of the various leaders of rodent control is one of 66,038 pocket-gopher tails taken on June 19 at Phoenix, Ariz., by D. A. Gilchrist, leader of rodent control in that State. When the tails were received at headquarters, they were counted and then sprinkled with arsenic and salt to preserve them. They had been taken in contests and by members of the Survey's staff at pocket-gopher trapping demonstrations. The demonstrators find that they can use as many as 150 pocket-gopher traps in a day's work.

LAND ACQUISITION

Refuge Surveys Begin.--Mr. Dieffenbach left Washington on July 1 for Winona, Minn., to confer with field men of the division. Two parties were formed, headed respectively by Robert M. Rutherford and Harold W. Hicks, both formerly assigned to acquisition work on the Upper Mississippi River Wild Life and Fish Refuge, to make preliminary examinations of areas recommended for migratory-bird refuges. Mr. Rutherford and party are now working in Kansas, and Mr. Hicks and party in Minnesota. Before returning to Washington Mr. Dieffenbach plans to visit Great Bend, Kans., Salt Lake City, Utah, and San Francisco, Calif., in connection with preliminary details incident to the acquisition of refuge lands.

Appointments.--Arthur A. Riemer was transferred from the Forest Service to the Survey on June 7 to assist Mr. Dieffenbach in the administration of the new Division of Land Acquisition. Mr. Riemer has been with the Forest Service for the past 12 years, engaged on land-acquisition work. George D. Chittick, Daniel H. Janzen, and Albert J. Rissman have been appointed as junior foresters in this division, effective July 1, and Carey H. Bennett, as junior forester, effective July 2.

GAME AND BIRD CONSERVATION

Returns from Field Trip in Northeast.--Mr. Sheldon returned to Washington on July 2 from a trip into the New England States and New York, where he interviewed State game officials and sportsmen relative to game conditions in their districts. He states that there is undoubtedly a moderate increase over last year in the numbers of woodcock in Vermont, but that there seems to be no perceptible increase in ruffed grouse. He observed a considerable number of ducks--black ducks, teal, and whistlers--in the inland ponds and marshes of New Hampshire, Maine, and New York, and infers that in this section the nesting and hatching season for wild fowl has been successful.

Talks on Game and Fish Problems.--Talbot Denmead, assistant U. S. game conservation officer, attended a meeting of the Severn River Association at Annapolis, Md., on the evening of June 27, and made an address on "Some of Our Game and Fish Problems."

Visits Big Lake Bird Refuge.--Ernest P. Walker, assistant in reservations administration, made an inspection trip to Big Lake Bird Reservation, Ark., during the period July 10 to 17.

New Bird Refuge in Florida.--By Executive order of July 16, 1929, President Hoover has set aside as a refuge and breeding ground for birds Snake, Dead Man or Bird, and North Keys, in the island group known as Cedar Keys, off the west coast of Levy County, Florida, west of Waccassassee Bay. It will be known as the Cedar Keys Bird Refuge. The islands reserved serve as important nesting and wintering grounds for hundreds of aquatic birds, including several species of herons, pelicans, and cormorants, some of which are becoming greatly depleted in number.

Improvements at Wind Cave.--Work has been progressing steadily on both the dam at Cold Springs Creek and the Beaver Gorge bridge at Wind Cave Game Preserve, S. Dak. Contractors expected to complete the dam about August 1, but the bridge will not be completed before fall. A new water system to supply the headquarters of the preserve, for which contracts have been let, will consist of a concrete intake tank and an additional 1 1/4 miles of two-inch supply pipe to connect with the present half-mile line.

Bison Range Notes.--Two engineers with two crews of the Geological Survey have begun work at the National Bison Range, Mont., with a view to the preparation of a map of the area. The president of Montana State University, who visited the Bison Range on June 12, is planning to have the students of the University Summer School visit the reservation during the summer.

Sullys Hill Notes.--Hail fell to the depth of two inches at Sullys Hill Game Preserve, N. Dak., on the night of June 8. Much damage was done to small birds, bird nests, grain crops, and trees.

Eight antelope--four pairs of twins--born at this preserve during May and June, are reported to be doing well. Two of them are being raised on cow's milk.

Three pairs of Canada geese nested at the preserve this spring. Crows destroyed the eggs in one nest, but each of the other two pairs hatched five young. The ten young geese were thriving until the night of June 8, when the destructive hailstorm killed three of the young. The remaining seven are doing well. Twenty-two mallards were kept at the preserve during the winter. A few of these birds are kept there each winter in order to draw others back the next spring. Many mallards have hatched out along the shores of the small lake within the reservation this season, and a number of goldeneyes have nested in the boxes put up on the trees for them. Other water birds nested in the tall grass.

Extensive improvements have been made to the water system at Sullys Hill. An exhibition pasture for the game animals is being constructed. The road leading from the highway to the preserve entrance has been much improved by county authorities.

During the fiscal year just ended 22,674 visitors with 4,844 cars called at the preserve. On the Fourth of July there were 1,752 visitors with 336 cars.

Upland Birds Scarce at Niobrara.--The continued scarcity of grouse, prairie chickens, and quail at Niobrara Reservation, Nebr., is believed due to disease, at least with reference to the first two species named. There has been a slight recovery in the numbers of grouse and prairie chickens, and if conditions permit it is thought they will return to normal numbers in a year or so.

Pet Elk at Elk Refuge.--A pet male elk that was brought to the Elk Refuge, Wyo., a year ago by O. J. Murie for experimental purposes is proving to be quite an attraction to tourists that visit the refuge. On June 24 and 25 it was borrowed by the Elks Lodge, which was holding a convention in Jackson, Wyo., immediately southwest of the refuge. The animal was placed in the city square during the day and in the evening was led in the parade, after which it was taken back and turned loose on the refuge.

Chinese Pheasants Surviving at Elk Refuge.--Five of the eight Chinese pheasants that were liberated at the Elk Refuge last April have recently been seen at Cache Creek, about a mile south of the refuge, and a pair were seen near the quarters on the Izaak Walton League addition. These are the first birds of this species that have been liberated in the valley.

Pictures of Birds Obtained at Lake Malheur.--Representatives of a motion-picture firm of Stockton, Calif., visited Lake Malheur Bird Refuge, Oreg., June 4-8 and took pictures of the gull and pelican colonies. On going to the Mud Lake section to take pictures of the golden eagles, the cameramen found that one of the mother birds and one of the young had been shot. The old bird measured 7 feet 2 inches from tip to tip.

Snow Geese at Lake Malheur.--Protector George M. Benson recently noted five snow geese on the north end of Cole Island, within Lake Malheur Refuge, and states that this is the first time he has seen any of this species on the lake at this time of year. He estimates that in June there were ten pairs of sandhill cranes nesting in the Diamond Valley region near the refuge.

Birds Banded at Stump Lake.--Protector Wesley D. Parker and Deputy Reservation Protector H. J. Schindele banded more than 100 California gulls and a number of cormorants at Stump Lake Bird Refuge, N. Dak., on June 23.

Appointments.--J. R. Quesenberry, senior animal husbandman, of the Bureau of Animal Industry, in charge of the United States Range Livestock Experiment Station, Miles City, Mont., has been appointed deputy reservation protector and United States deputy game warden at the Fort Keogh Bird Refuge, Mont., the lands embraced within the bird-refuge boundaries being the same as those of the experiment station. Mannie Carter has been appointed deputy reservation protector and United States deputy game warden at Savannah River Bird Refuge, S. C.

Doctor Palmer Returns from Western Trip.--Dr. T. S. Palmer returned to Washington on July 15 after an interesting trip of two months in the West, which included four national parks, the Petrified Forest and two other national monuments, the California State Redwood Park, and also a sidetrip to Ensenada, Lower California.

Birsch and Capps Freed of Killing Charges.--Since the notice in last month's issue of THE SURVEY of the acquittal of A. Floyd Mercer, Virginia State Game Warden, for the killing in self-defense of two alleged game-law violators on February 4, 1927, at Back Bay, Va., an order was issued, July 16, in corporation court at Norfolk, Va., nol-prossing the remaining indictments against Warden Mercer and all charges against United States Game Protector William L. Birsch and United States Deputy Game Warden John T. Capps, who were indicted at the same time but never brought to trial.

This is a very gratifying conclusion of a long drawn-out legal battle. The Survey and all the friends of the wardens were confident that they were doing no more than their duty in enforcing the game laws and that they had fired upon the violators only as a last resort to save their own lives. The dismissal of the charges against the three officers should have a beneficial effect upon successful game-law enforcement in the wild-fowl areas of Virginia and adjoining States.

Treaty-Act Cases Terminated--Reports Received during June

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Blackwell*, Taylor***	1	Illinois	Selling ducks	\$50 and costs of \$35
Farnham, Hodge*, Capps*, Creighton*	1	Virginia	Hunting and killing ducks after sunset	\$50
" "	2	"	Hunting and killing ducks after sunset	\$10 each
Gieseler*	1	Illinois	Shooting at and attempting to kill a grebe	\$25
Holmes	1	Nebraska	Hunting ducks and geese in close season	\$5
Jans*	1	Illinois	Possessing a grebe	\$25
Mushbach, Carlock*	1	"	Attempting to kill ducks in close season	\$25 and costs of \$35
" "	2	"	Shooting at ducks in close season	\$15 and costs of \$35 each
Perry, Concannon*, Van Gaasbeek*, Smith**	1	Kansas	Possessing ducks in storage in close season	\$5
Perry, Schroer*, Huhn**	1	Missouri	Possessing ducks in storage in close season	\$5
Petersen*, Scholler*	1	Illinois	Shooting and possessing grebes	\$25
Riddick	1	Oklahoma	Killing geese from a motor boat	\$75
Roahen	1	Illinois	Possessing ducks in storage in close season	\$25
"	4	"	Possessing ducks in storage in close season	\$15 and costs of \$35 each
"	1	"	Killing and possessing a heron	\$15 and costs of \$35
"	1	"	Possessing ducks in storage in close season	\$10 and costs of \$35
Roahen, Carlock*	2	"	Shooting ducks after sunset	\$15 and costs of \$35 each
Roahen, Scholler*	1	"	Possessing ducks in storage in close season	\$50
Roahen, Taylor***	1	"	Selling ducks	\$50 and costs of \$35
Scholler*	1	"	Shooting at swallows; possessing a grebe	\$25
Scholler*, Jans*	1	"	Possessing robins	\$25
Scholler*, Petersen*	2	"	Killing coots from a motor boat	\$25 each
" "	1	"	Possessing grebes	\$10
Shaver, Carlock*	1	"	Killing and possessing a duck in close season	\$25 and costs of \$35
Shaver, Moore**	2	Minnesota	Hunting and possessing pectoral sandpipers	\$10 each
Steele, Huhn**	2	Missouri	Killing ducks in close season	\$10 each
Steele, Tonkin, Capps*	1	Virginia	Hunting ducks after sunset; using gun larger than No. 10 gauge	\$10

*U. S. Deputy Game Warden.

**Deputy State Game Warden.

***Cooperator.

Treaty-Act Cases Terminated--Reports Received during June--Continued

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Whitehead	25	Georgia	Killing and possessing robins	\$5 each
"	1	"	Killing and possessing robins	\$1
"	1	"	Killing mourning doves in close season	\$10
"	2	South Carolina	Hunting ducks after sunset	\$10 each
Whitehead, King*	1	" "	Killing grebes	\$10

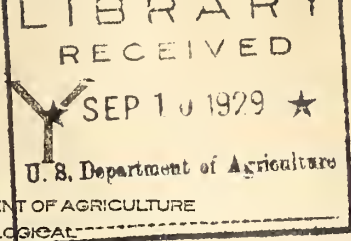
Treaty-Act Cases Reported for Prosecution

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Barmeier, Creech*	3	Missouri	Transporting illegally killed ducks from Illinois to Missouri
Barmeier, Heller*	5	"	Possessing ducks in storage in close season
" "	1	"	Hunting ducks in close season
Barmeier, Heller*, Ott**	1	"	Killing and possessing a duck in close season
Barmeier, Taft**	2	"	Killing a duck in close season
Creech*	1	Illinois	Hunting ducks and coots in close season
Eckert*	1	Massachusetts	Killing two black-crowned night herons
Jans*	1	Illinois	Possessing a jacksnipe and a sandpiper in close season
Kelsey, Conway**	2	Florida	Hunting and killing coots from a motor boat
Linebaugh, Gentry**, Skidmore**	1	Kentucky	Killing and possessing a coot in close season
Perry	1	Kansas	Possessing ducks in storage in close season
Perry, Concannon*, Smith**	4	"	Possessing ducks in storage in close season
Fiddick	1	Arkansas	Offering for sale and selling ducks
Fiddick, Deaton**	3	"	Hunting and killing ducks from a motor boat
Fiddick, Thomason**	1	"	Possessing ducks in close season
Roahen	3	Illinois	Hunting and possessing coots
Roahen, Raeth*	1	Wisconsin	Possessing ducks in storage in close season
Shaver	1	North Dakota	Possessing ducks in storage in close season
Steele, Bedsworth**	1	Maryland	Selling ducks
Steele, Rurak**	2	"	Killing ducks after sunset

*U. S. Deputy Game Warden.

**Deputy State Game Warden.

THE SURVEY



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No. 8

GENERAL NOTES

Chief and Young Having Busy Trip.---Mr. Redington and Stanley P. Young, of the Division of Predatory-Animal and Rodent Control, who are still in the West, report that they are having a busy trip and are meeting many representatives of livestock associations, game officials, members of the Forest Service, and others, and are conferring with field leaders regarding their work. On August 14 they had opportunity to visit Bryce Canyon National Park in Utah, and on the 16th to attend a field-day program of the Great Basin Forest Experiment Station, near Ephraim, Utah, at which was present also Assistant Secretary of Agriculture R. W. Dunlap. Both Mr. Dunlap and Mr. Redington addressed the assembled crowd. Methods for the control of porcupines and other rodents developed by the Survey and tested at the station were demonstrated.

Appointed on Business Committee.---Rudolph Dieffenbach, in charge of the Division of Land Acquisition, has been appointed a member of the Committee on Business Methods of the Bureau. The other members of this committee are E. R. Kalmbach, W. E. Crouch, Frederick C. Lincoln, W. R. Dillon, and E. J. Thompson (chairman).

Official Publications.---The following official publication of the Bureau was issued during the month:

"Abstract of Fur Laws (Seasons) for 1929-30." Mimeographed Leaflet Bi-1050. 10 p. Received August 26.

BIOLOGICAL INVESTIGATIONS

On Waterfowl-Census Field Trip.---Dr. H. C. Oberholser left Washington on July 31 for an extended trip in the West and Northwest in the interest of the wild-fowl censuses. His itinerary for August included points in Ohio, Illinois, Wisconsin, Minnesota, Manitoba, Alberta, British Columbia, and Washington.

Bailey Still in Arizona.---Vernon Bailey has continued his studies in the Grand Canyon, Ariz., and early in August he completed his examination of the Kaibab Plateau. He reports an interesting and instructive trip and states that the recent heavy rains have made a great flower garden of the whole country. About the middle of the month he accompanied a party from the University of Arizona on a collecting trip to San Francisco Mountain. Dr. Walter P. Taylor was also a member of the party.

Vacations.--Mrs. Blanche W. Mahlman left on August 5 for a month's visit at Hastings, Nebr.; Miss Myra Putnam spent the month of August in Maine; and Miss May T. Cooke left on August 16 for about a month's vacation in New Hampshire.

On Military Leave.--F. C. Lincoln, captain in the Signal Corps (Reserves), spent the period August 4 to 17 at Fort Monmouth, N. J., on detail to military service. John G. May, lieutenant in the National Guard, was on military duty at Camp Richie, near Cascade, Md., from August 12 to 24.

Count Waterfowl on Potomac.--Dr. H. H. T. Jackson and C. H. M. Barrett made a trip to Occoquan Bay in connection with the August waterfowl census on the Potomac River. They reported food conditions excellent, especially in Occoquan Bay, where wild celery was abundant. Five species of ducks were observed, as follows: Black duck, 84; lesser scaup, 20; canvasback, 9; mallard, 5; redhead, 2. Most of the black ducks seemed to be still in family parties, indicating that they had bred at no great distance. Other birds noted included 93 little blue herons, 80 great blue herons, 32 American egrets, 3 green herons, 11 ospreys, 4 bald eagles, 2 black terns, 1 double-crested cormorant, and 1 laughing gull.

FOOD HABITS RESEARCH

Surveys of Proposed Refuge Sites Continue.--Since the report in the last number of THE SURVEY, the eastern crew, consisting of Neil Hotchkiss and Leonard E. Ekvall, has been working on surveys of proposed migratory-bird refuges in New Jersey, New York, and Connecticut; the middle western party, including F. M. Uhler and Fred A. Warren, has been continuously employed in Minnesota; and the western one, with Charles C. Sperry and A. C. Martin, in Idaho and Washington.

To Study Upland Game Birds in Middle Western States.--Cooperative agreements have recently been entered into by the Biological Survey, the State Universities of Wisconsin, Minnesota, and Michigan, and the Sporting Arms and Ammunition Manufacturers' Institute, of New York City, covering a three-year investigation of upland game birds in midwestern States. In Wisconsin the study is to be centered particularly on methods for the increase of quail, in Minnesota on the life history and ecology of the ruffed grouse and other game birds, and in Michigan on the distribution, life history, and ecology of the ring-necked pheasant, the Hungarian partridge, and quail. The investigation in each case is supported primarily by the Sporting Arms and Ammunition Manufacturers' Institute, which has established research fellowships at the universities for the purpose. Under the terms of the agreements, the Biological Survey will contribute the services of Herbert L. Stoddard, who will assist in planning and directing the work and maintain contacts with the research fellows and with officials of the universities and the institute. This study of gallinaceous birds in midwestern States will be similar to the cooperative quail investigation that was recently completed in southern Georgia and northern Florida, in which Mr. Stoddard was field leader.

Duck-Disease Investigation.--E. R. Kalmbach, who for the past two months has been studying the duck sickness in the vicinity of Klamath Falls, Oreg., reports that the number of sick birds is increasing. This has warranted the enlisting of the services of Dr. Eloise B. Cram, of the Bureau of Animal Industry, who will make parasitic and bacteriological studies in connection with the investigation.

Bird-Attraction Project.--The season for nesting birds at the Experimental Chestnut Orchard at Bell, Md., is practically at an end, so that it is now feasible to sum up the results of bird-attraction operations for the year. With the same equipment as last year, the number of whole or partial broods produced has been raised to a total of 89. Distribution of these broods according to species is as follows: European starling, 35; house wren, 33; purple martin, 9; bluebird, 5; English sparrow, 5; great crested flycatcher, 1; and tufted titmouse, 1. This is the first record of the nesting of the tufted titmouse in bird houses at this station. This species has been previously known to nest in bird houses, but it is interesting to have this confirmation of its adaptability in this respect. The production of broods for the season was at the rate of 25.4 to the acre. This acreage-production figure, which is of most interest from the Biological Survey's point of view in this cooperative project, has risen steadily from the beginning. The figure for the first year was 6.8, for the second 16, and the third 18.5, counting only the broods produced in bird houses and not those in nests in trees and shrubbery, with which the area is well supplied. The number of the latter for this season will be counted later when the leaves have fallen.

FUR RESOURCES

Heat Causes Losses Among Muskrats.--Mr. Ashbrook, on July 24, investigated losses among muskrats at a fur farm at Little Creek, Del. The muskrats there are being raised in small, galvanized-iron pens, and on account of the high temperature, ranging from 98 to 115 degrees, a number of the animals died.

Visits Fur Farm in Pennsylvania.---On August 2, Mr. Ashbrook visited a fox ranch at Brockway, Pa. From 51 pairs of silver foxes on this farm, 171 pups were produced. This number is above the average production, and the quality of the young foxes is good. The company is planning to pelt about half of these animals and retain the rest for breeding purposes.

Study Fox Epizootic on Eastern Ranches.---Dr. Karl B. Hanson returned to the Fur-Animal Experiment Station, at Saratoga Springs, N. Y., on August 10 after inspecting disease conditions on fox farms in Pennsylvania and Vermont. He also conferred with specialists in Philadelphia regarding certain laboratory findings associated with the diseases being studies. Dr. Earle T. Dewey returned to Minneapolis, Minn., on August 9, after studying disease conditions on ranches in Pennsylvania, New York, Maine, and Wisconsin. He was in conference with specialists in Chicago, Ill., and Albany, N. Y., who had been called in by the above-mentioned States to investigate the epizootic that seems to be prevalent. Doctor Dewey visited also the Fur-Animal Experiment Station at Saratoga Springs, N. Y., to become familiar with the work being conducted there.

Attends Veterinarians' Meeting.---Dr. J. E. Shillinger returned on August 17 from a trip through western States. En route to Washington, he attended the annual convention of the American Veterinary Medical Association, held in Detroit, Mich., August 13 to 16. He showed the motion picture "How to Handle Foxes" and supplemented it with remarks about the work of this division.

Visits Local Rabbitries.---John W. Meyer, acting director of the U. S. Rabbit Experiment Station, at Fontana, Calif., accompanied by Dr. Roger W. Truesdail, of Pomona College, recently made an interesting three-day trip to rabbitries located at Oxnard, Ventura,

Saticoy, Santa Paula, and Santa Barbara, Calif. A visit was made to the rabbit-killing plant at Oxnard, where State inspection of rabbit meat is required. This is the only plant of its kind in the State. Mr. Meyer reports that the development of the rabbit industry is very gratifying, especially in Ventura and Oxnard.

4-H Rabbit Club Visits Experiment Station.--On August 1, 75 boys and girls composing the 4-H Club of Orange County, Calif., accompanied by the assistant county farm adviser, visited the U. S. Rabbit Experiment Station, at Fontana, Calif. Mr. Meyer explained the work of the station and then took them on a trip of inspection to the poultry plant and hog farm operated by the Fontana Farms Company. They returned to the experiment station and enjoyed a picnic lunch on the lawn in front of the administration building.

PREDATORY-ANIMAL AND RODENT CONTROL

Farmer-Hunter System Successful in Wyoming.--A. M. Day, leader in the Wyoming district, reports that the farmer-hunter work last winter accomplished much in the control of predatory animals, according to advices received from several of the counties where this cooperative work was conducted. Sheepmen reported their losses to be the lightest in several years and are anxious to carry this work further next winter. Mr. Day's annual report shows a total catch of 208 bobcats and 3,126 coyotes taken by this cooperative hunter force during the fiscal year 1929.

Added Cooperation Increases Year's Catch.--Five new woolgrowers' associations and five boards of county commissioners in Wyoming began cooperative operations with the Bureau in predatory-animal control work during the fiscal year 1929. This increased cooperation permitted the employment of 18 additional hunters for a portion of the year and resulted in increasing the catch by about 25 per cent.

Briggs a Howling Success!--J. C. Gatlin, leader of predatory-animal control in Oklahoma and Arkansas, received a letter from Hunter J. A. Woodward relative to the work of Assistant Leader C. F. Briggs, which in effect reads as follows: "Assistant Leader Briggs has been with me this week. While here he called up a wolf for me by imitating the howl of this animal and I shot at it. The wolf ran off, but I was sure I had hit it. However, in getting after another one in the brush I lost sight of the one I had shot. I was instructed by Mr. Briggs to watch the buzzards and find my wolf, and on the 24th I found the wolf in a small hole of water, although there was not much left of it, except the scalp, which I am sending in. When you talk with Mr. Briggs I am sure you will give me the credit for the wolf. If I could howl like Briggs I would need no traps at all; I would just use my rifle."

Range Forage Saved by Rodent-Control Operations.--Ira N. Gabrielson, leader of rodent control in Oregon, reports the receipt of an interesting letter from a cooperator relative to the work in controlling ground squirrels on the Klamath Indian Reservation, who says: "This work covered an area about 50 miles long and an eighth of a mile wide and was very effective on the ground covered, practically exterminating all the squirrels. In estimating the amount of forage grass saved we could calculate a minimum saving of about \$1 an acre."

Large Wolf Poisoned in Utah.--George E. Holman, leader of predatory-animal control in Utah, reports the poisoning of a large male wolf at one of the poison stations at the head of Weber River. For several years there have been no reports of wolves ranging in

that part of the State until last fall, when sheepmen reported that they had seen signs of a wolf on this range. Mr. Holman supposes that the wolf drifted in from some locality in Wyoming, where Biological Survey hunters have been hard on the trails of wolves.

Rasmussen Ill.--Edward Rasmussen, assistant leader of predatory-animal control in Utah, has been confined to his home on account of illness during most of the month. It is hoped that his recovery will be speedy.

Death of W. C. Kirkland.--It is with regret that the death is reported of Hunter W. C. Kirkland, of the Nevada district, which occurred on August 1. He was one of the Bureau's most efficient trappers, catching 31 coyotes and 4 bobcats during July until he became ill on the 27th. His employment in the Survey as a trapper began in August, 1923, and during his six years of service he put forth his best efforts and was always ready to assist ranchers in the protection of their livestock from predatory animals. He will be greatly missed by the Bureau and his many friends.

Moyer Resigns.--J. F. Moyer, assistant leader in the New Mexico district, has resigned, effective August 20, to accept a position elsewhere.

Appointments.--Miss Mary Ward King has been appointed stenographer in the Wyoming district, effective September 1, to fill the position made vacant by the resignation of Miss Irene James, who has been transferred to the Bureau of Education, in Washington, D. C. Miss Helen Rockwell has been appointed stenographer in the Texas district, effective August 20.

LAND ACQUISITION

Returns from Western Trip.--Mr. Dieffenbach returned from an extended field trip on August 3, having inspected areas recommended as suitable for refuge purposes in Utah, Oregon, California, and Arkansas.

Examination Work Progressing.--The field parties under Harold W. Hicks and Robert M. Rutherford since leaving Winona, Minn., have made satisfactory progress in the examination of areas being considered for migratory-bird refuges. Mr. Rutherford and his party have completed examinations of designated areas in Kansas, Colorado, and Utah, and will shortly proceed to examine regions considered desirable in Nevada. Mr. Hicks, with his party, has completed his work in Minnesota and North Dakota, and is now working on several designated units in Montana, from where he will proceed to Idaho for further studies of proposed refuge sites.

Draftsman Appointed.--The Washington office force has been rounded out by the appointment of George F. Pierce as draftsman, who was transferred from the Bureau of the Census, of the Department of Commerce, to the Biological Survey, effective July 17. Since his appointment much more rapid progress has been made in the compilation of field maps and the assembly of related data needed by the crews who are conducting the field examinations.

GAME AND BIRD CONSERVATION

Makes Trip in Interest of Enforcement Work.--W. R. Dillon was in Norfolk, Va., on July 26 and 27, in the interest of the enforcement of the migratory-bird treaty act, and in Cambridge, Md., on Hoopers Island, and at other points in that vicinity on August 12, where he discussed with Game Protector Orin D. Steele plans for the coming season.

Superintendent Takes Up New Duties.--Ray C. Steele assumed his duties as superintendent of the Upper Mississippi River Wild Life and Fish Refuge, with headquarters at Winona, Minn., on August 16, thereby filling the position made vacant by the resignation of W. T. Cox, who, as announced in the March SURVEY, is to head the Brazilian Forest Service.

Death of Deputy Warden Camp.--It was with deep regret that the Survey learned of the death of United States Deputy Game Warden Robert D. Camp, of Brownsville, Tex., which occurred on August 6 after an illness of about seven months, during which time he lost his eyesight. Mr. Camp had been a Federal deputy since April 16, 1920. Sympathy is extended to his relatives and friends.

Inspects Big Lake Bird Refuge.--Ernest P. Walker, assistant in reservations administration, during the first part of July inspected Big Lake Bird Refuge, Ark. While in that territory he conferred with United States army engineers in Memphis, Tenn., in connection with water conditions at the refuge.

Harvesting Hay at Elk Refuge.--The harvesting of the hay crop at the Elk Refuge, Wyo., began on July 22. Ranchers in the locality report that their hay crops are far short of the normal yield.

Visitors at Elk Refuge.--M. W. Talbot and L. W. Kephart, of the Bureau of Plant Industry, were at the Elk Refuge during the week of July 21 and made an examination of the meadowlands with a view to planning methods for the control of injurious grasses and for increasing the hay yield of some of the lands. The Wyoming State Game and Fish Commission, which was holding its semiannual meeting at Jackson, Wyo., visited the refuge on July 12, accompanied by the head of the Fish Department of Wyoming and three members of the United States Bureau of Fisheries. The large springs on the refuge were inspected with a view to determining their suitability as a site for the establishment of a fish hatchery, but the results were not favorable. On July 30, at the invitation of the State Game and Fish Commission, Protector Almer P. Nelson accompanied the members of the Yellowstone National Park Boundary Commission in a tour of Jackson Hole Valley to view the elk winter ranges. In the afternoon of that day the Commission, accompanied by Horace M. Albright, director of the National Park Service, held a meeting at the Elk Refuge and discussed matters pertaining to the conservation of the elk. United States Game Protector George E. Mushbach, of Billings, Mont., also visited the refuge in July and discussed with Mr. Nelson various matters pertaining to migratory-bird protection.

Fire at Conconully Reservation.--C. M. Conger, protector of Conconully Bird Refuge, which is within the Okanogan Irrigation Project, Wash., reports that on July 28 a fire started on Ruby Mountain, 6 miles south of the refuge, and by July 30 had burned north to

the reservoir through all the large timber on the refuge, killing most of the trees. The fire fighters managed to save the buildings located on the project. Mr. Conger states that he saw a few grouse flying through the smoke but could not tell whether many escaped.

Clear Lake Refuge Notes.--Deputy Reservation Protector Silas W. Kilgore reports that sage hens are scarce at the Clear Lake Bird Refuge, Calif., and that because of a late, cold spring there are few young birds. There was about a normal hatch of geese, ducks, and coots this season. Mr. Kilgore states that about 700 male deer winter near Clear Lake each year.

Visits Washington Office.--L. M. Winsor, irrigation engineer of the Bear River Migratory-Bird Refuge, Utah, visited Washington, D. C., during the latter part of July for consultation with officials of this Bureau and of the Bureau of Public Roads relative to construction work at the refuge, and to be present at the opening of the bids in connection with it.

Vacations.--Miss Clara Ruth has returned to the office after a vacation spent in Canada and New York. Miss Margaret A. Roberts recently spent her vacation in New Hampshire and Vermont, Miss Martha Taylor in New Jersey and Norfolk, Va., and Mrs. Margaret Leonard in Maine. Miss Mary O'Brien is passing her vacation in New York.

Waldron DeWitt Miller, who has been an inspector of foreign birds and mammals at the port of New York, N. Y., for nearly 18 years, died at St. Peter's Hospital, New Brunswick, N. J., on August 7, 1929, as a result of injuries received in a motorcycle accident three days before. Mr. Miller was one of the best informed American ornithologists on foreign birds and was considered by his close associates as an encyclopaedia of knowledge regarding the science. His reports of inspections indicated painstaking and conscientious care in making complete and accurate lists of the various species of birds and mammals arriving at the port of New York from nearly all parts of the world.

Mr. Miller was born in Brooklyn, N. Y., February 4, 1879, and was graduated from the high school shortly before he received an appointment in the American Museum of Natural History, New York City. At the time of his death he was associate curator of birds in that museum, a fellow of the American Ornithologists' Union, and vice president of the Audubon Society of New Jersey. His untimely death is deeply regretted not only by the Survey but by his many friends and members of the various organizations with which he was connected.

Importations by Airship.--An interesting permit was issued on August 6 for the first consignment of birds and animals to arrive by airship. This shipment, which included 600 canaries, one gorilla, and one chimpanzee, arrived at Lakehurst, N. J., on the Graf Zeppelin from Friedrichshafen, Germany, on August 4.

Fined Under Refuge Act.--The third and fourth convictions for violation of the Upper Mississippi River Wild Life and Fish Refuge Act were obtained in Federal court at Superior, Wis., on August 6, a fine of \$25 being assessed against each defendant, for hunting and killing wild ducks on an area not open to public shooting. Evidence in these cases was furnished by Reservation Ranger Lundberg and Deputy Reservation Ranger Berni.

Hunters Increasing.--The hunting-license compilation for the season 1927-28 just released indicates substantial increases both in licenses issued and money returns. The revenue to the States totaled \$9,338,173 for 6,413,454 resident and 49,102 nonresident or alien licenses. New York State, with 675,780 licenses and \$699,873 in money returns, and Pennsylvania, with 517,729 licenses and a revenue of \$1,006,159, headed the list.

Busy Year for Protectors.--During the fiscal year 1929 protectors and deputies submitted evidence in connection with 576 migratory-bird treaty-act violations. A total of 376 cases were successfully prosecuted, and fines and costs totaling more than \$13,000 imposed. In addition, 27 persons were committed to jail for periods of from 10 days to 6 months.

In the conduct of investigations at fur houses protectors discovered approximately 4,500 shipments of skins of fur-bearing animals involving apparent violations of State game laws, evidence in connection with which was furnished the States affected. Reports received from the States indicate that as a result of this cooperation, 1,500 persons were successfully prosecuted and fines of more than \$37,000 assessed. In 11 cases the defendants received jail sentences.

Four persons in Maine engaged in illegal beaver traffic were successfully prosecuted in State court on evidence furnished by Protector Smith who was aided in this work by Deputy State Game Warden Small. One beaver skin was ordered confiscated by the court and the fines assessed against the defendants totaled \$500, the costs amounting to \$35.

Treaty-Act Cases Terminated--Reports Received during July

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Clarkson	1	Texas	Killing and possessing coots in close season	60 days jail sentence sus- pended
"	1	"	Killing and possessing ducks in close season	\$25
Farnham	1	New York	Killing a heron	\$20
Fleming,Randall*	1	Indiana	Killing a grebe	\$15
Hoffman,Stewart**	1	Alabama	Possessing meadowlarks	\$5
Holland*,Brouillette*, Gremillion**,Texada**	1	Louisiana	Killing night herons	\$5
Kelsey	1	South Dakota	Hunting ducks after sunset	\$25
Linebaugh	1	Tennessee	Possessing ducks in storage in close season	\$50
Petersen*,Scholler*	1	Illinois	Killing and possessing grebes	\$25
Pingley	1	West Virginia	Killing a wild goose in close season	\$15 and costs of \$37
Riddick,Ridgway**	1	Texas	Killing sandpipers	\$10
Roahen,Scholler*	1	Illinois	Possessing a meadowlark	\$25
Shaver,Beals**	2	Minnesota	Hunting ducks after sunset	\$10 each
Shaver,Lingle**	1	"	Possessing swans	\$25
Shaver,Rogalla*	1	"	Hunting ducks from a motor boat	\$25
Smith	1	New Hampshire	Possessing a loon	\$10 and costs of \$20.10
Steele	3	Washington	Shooting ducks after sunset	\$10 each
"	1	"	Hunting ducks after sunset	\$10
Vogel*	2	Minnesota	Hunting ducks after sunset	\$10 each
Whitehead	14	Georgia	Killing and possessing robins	\$10 each

*U. S. Deputy Game Warden

**Deputy State Game Warden

THE SURVEY

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GENERAL NOTES

Chief Now on West Coast.--Mr. Redington was the principal speaker at the meeting of the Portland, Oregon, City Club on September 20. His subject was "Conserving Wild Life." The weekly meetings of the club are broadcast to a large radio audience through Station KGW, Portland. Since the first of September Mr. Redington and Stanley P. Young, in charge of the Division of Predatory-Animal and Rodent Control, have visited field stations of the Bureau in South Dakota, Nebraska, Montana, Washington, and Oregon. During the first half of October they will be at various points in Nevada and California, and will spend the latter part of the month in Arizona. They expect to return to Washington about November 1.

Meeting of Game Commissioners.--Members of the Bureau who attended the annual meeting of the International Association of Game, Fish, and Conservation Commissioners at Minneapolis, Minn., September 12-13, included W. C. Henderson, F. G. Ashbrook, and W. R. Dillon from the Washington office and Herbert L. Stoddard, in charge of the mid-West cooperative upland game-bird investigations, Ray C. Steele, superintendent of the Upper Mississippi Refuge, and David H. Madsen, who is superintendent of the Bear River Refuge and this year's president of the Association. Mr. Henderson delivered an address on the work being conducted under the Migratory-Bird Conservation Act, which was followed by expressions on the part of a number of the game commissioners present indicating their hearty support of the Survey's program and their desire to cooperate in its various lines of work. Mr. Ashbrook spoke on Legal Considerations for Fur Farming, and Mr. Stoddard on Progress of the Quail Investigations in the South. Mr. Stoddard also read a paper prepared by W. L. McAtee on Duck Foods and Their Distribution. Through the courtesy of Dr. William J. Mayo, of Rochester, Minn., the Biological Survey delegates and others attending the meeting and members of the U. S. Bureau of Fisheries in attendance at the annual meeting of the American Fisheries Society, September 9-11, had opportunity to travel by yacht from Wabasha, Minn., to La Crosse, Wis., along the route of the Upper Mississippi River Wild Life and Fish Refuge. About 25 of the commissioners and others were on the trip. Hoyes Lloyd, supervisor of Wild Life Protection in Canada, was elected president of the Association for the ensuing year, and its next annual meeting will be held in Toronto.

Southwestern Conservationists Meet.--Mr. Henderson, Superintendent Madsen, and U. S. Game Protector Harry Barmeier attended the annual meeting of the Southwestern Game and Fish Conservation Association at Steelville, Mo., September 6 and 7. On the evening of September 7, Mr. Henderson gave a radio talk on "State and Federal Cooperation in the Conservation of Wild Life" in the Ozark program over Station KMOX, from St. Louis, Mo.

Bibliography of Alaskan Literature.--A book recently published under authority of the Alaskan Government that should prove of much value to all who are in any way concerned with studies of Alaskan wild life is "A Bibliography of Alaskan Literature, 1724-1924" (Misc. Publ. No. 1, Alaska Agr. College and School of Mines) by James Wickersham, former Congressional delegate from Alaska. The volume contains more than 10,000 titles of publications pertaining to Alaska, grouped under such topics as agriculture, bear, birds, botany, conservation, ethnology, fiction, fisheries, forests, fur farming, game, hunting, mammals, John Muir, E. W. Nelson, reindeer, whales, zoology--to name only a few. Under the Bureau of Biological Survey, in the list of United States Public Documents relating to Alaska, are 44 entries, some covering a series of publications in one citation (e.g., Service and Regulatory Announcements and Alaska Game Commission Circulars).

Official Publications.--The following official publications of the Biological Survey were issued during the month:

"Directory of Officials and Organizations Concerned with the Protection of Birds and Game: 1929," compiled by Talbott Denmead and Frank G. Grimes. Miscellaneous Publication No. 57, 12 p. Received September 19.

"Mountain Beavers in the Pacific Northwest: Their Habits, Economic Status, and Control," by Theo. H. Scheffer. Farmers' Bulletin No. 1598, 18 p., illus. Received September 24.

"National Wild-Life Reservations," compiled in the Division of Game and Bird Conservation. Miscellaneous Publication No. 51, 10 p., maps. Received September 30.

BIOLOGICAL INVESTIGATIONS

Black-footed Ferret Taken in Arizona.--D. A. Gilchrist, leader of rodent control in Arizona, reports a black-footed ferret taken by Ben E. Foster about 7 miles northeast of Williams, Ariz., on August 26, 1929. This species has always been considered a rare animal in that State, but Mr. Gilchrist reports that a dozen or more of these ferrets are known to be working on the prairie dogs that survived poisoning operations, and that they are being protected on account of their good offices in this follow-up work. The first black-footed ferret taken in Arizona for a scientific collection seems to have been that by Dr. E. A. Mearns, a few miles south of Flagstaff in 1891. Another was taken near Springerville by Melvin Brown in January, 1917. The specimen taken by Mr. Foster will be deposited in the Biological Survey collection in the National Museum.

Waterfowl Banding Station Established.--F. C. Lincoln left Washington about September 1 for Dawson, N. Dak., to establish a banding station for waterfowl in that vicinity as a further means of ascertaining their migration routes. This station will yield data from a region where large flights of ducks pass in their northward and southward flights, but one from which hitherto there have been no means of obtaining specific information by the banding method. Mr. Lincoln reports ideal conditions of location and weather for initiating the work and a good catch from the beginning of the trapping operations.

Reindeer-Caribou in Round-up.--Late in June and early in July, W. B. Miller traveled from Nome to Nunivak Island, Alaska, to cooperate in the annual round-up of reindeer and caribou there. The actual round-up, which occupied the period June 28 to July 11, necessitated traveling on foot with the herders from 6 a.m. to midnight on some days, the party

covering as much as 35 miles on each of several days. The labor involved in this operation can be fully appreciated only by those who have walked all day over the rough tundra, which is the natural habitat of these animals of the Arctic.

Makes Trip Down Yukon to Get Reindeer.--L. J. Palmer reports a successful trip down the Yukon River to obtain 20 additional reindeer for use at the Reindeer Experiment Station at Fairbanks, Alaska. Most of the animals withstood shipment well and arrived at the station in good condition. Mr. Palmer did not return with the animals but went on to Nome with Dr. W. E. Dove, who has been detailed by the Bureau of Entomology to cooperate in a study of warble flies, nose flies, and other insects detrimental to reindeer. In company with the general manager of the Alaska Railroad, Mr. Palmer traveled by airplane from Nome to Fairbanks, inspecting grazing areas and possible routes for bringing reindeer to the vicinity of Fairbanks for shipment to market over the Alaska Railroad, and was enthusiastic over this means of travel in making surveys to locate areas suitable for grazing purposes. He reports also that a recent plague of mosquitoes proved exceedingly troublesome to the reindeer.

Bailey Now at Mammoth Cave, Ky.--Vernon Bailey completed his season's field work in the vicinity of Grand Canyon, Ariz., the first of September. He then visited museums at Los Angeles and San Diego, Calif., to check up on specimens taken about Grand Canyon. He has since conferred with officials of the State University of Oklahoma with a view to aiding them in a biological survey they are making of that State. He has arrived at Mammoth Cave, Ky., where he will spend about a month completing the field work on the fauna of the cave and vicinity. This work is being done in cooperation with the State Geological Survey.

FOOD HABITS RESEARCH

Duck-disease Investigation.--Dr. Eloise B. Cram, of the Bureau of Animal Industry, who has been cooperating in the study of the duck sickness at Klamath Falls, Oreg., has completed her laboratory work. Dr. C. Dwight Marsh of the same Bureau also cooperated for a few days in an effort to learn whether any poisonous plants were involved in the trouble.

Birds Dig Holes in Golf Turf to Get Cutworms.--On the experimental farm of the Department of Agriculture in Arlington County, Va., are sample plots of grasses of interest in connection with the maintenance of golf courses. These are used for many experimental purposes, and recently it was noted that birds were making holes in them, one species, the European starling, sometimes digging in them to an objectionable extent. As there was soon to be an inspection of the plots by green keepers from numerous States and it was desired to have them in perfect condition, the first reaction was to shoot the birds to stop the damage. As soon as the matter was brought to the attention of this Division, it was pointed out that the birds were probably in search of some form of food abundant in the plots and if this could be identified and destroyed the damage by birds would cease. Accordingly, Clarence Cottam, a junior biologist of this Division, made a study of the situation and the results obtained show definitely that cutworms abundant in the turf were the principal attraction to the birds. In all probability the cutworms can be greatly reduced or even exterminated by the use of proper insecticides. When this is accomplished, damage by birds undoubtedly will cease. Similar cases have been heard from on golf courses in other sec-

tions, and it would seem that the procedure here described is much more logical than shooting the birds.

Recognition.--Mr. McAtee has been made a corresponding member of the Royal Hungarian Ornithological Institution, "in recognition of his merits in the field of ornithology," as a recently received certificate reads.

FUR RESOURCES

Field Day at Fur Experiment Station.--The Fur Animal Experiment Station at Saratoga Springs, N. Y., was the center of attraction for about 130 members of fox breeders' associations during the field day held there on September 19. The American and the New York State Fox Breeders' Associations were in joint convention at the New York State Museum at Albany, September 17-19, and the third day was given over to a visit to the station. The program of the convention included a talk by Mr. Ashbrook on the relation of the Bureau's work to fur farming, a paper by Dr. Karl B. Hanson on "Parasites of Foxes," and a showing of the Bureau's film "How to Handle Foxes." The program of the field day consisted of three addresses by officials of the Department and a tour of inspection of the station. Dr. A. F. Woods, Director of Scientific Work, in the address of welcome, discussed the research work of the department and stressed the value of research in the new field of fur farming. Doctor Woods seemed favorably impressed with developments at the station and the work being conducted there. Mr. Henderson read a comprehensive paper on "The Functions of the Fur-Animal Experiment Station," and Mr. Ashbrook spoke on the purpose of the station's field day. Copies of Biological Survey publications on fur-animal production were distributed to the visitors, who registered from the New England States, New York, Pennsylvania, New Jersey, Ohio, Minnesota, and Wisconsin.

Conditions at Fur Station.--Mr. Ashbrook spent several days at the Fur-Animal Experiment Station during the month and reports that everything there is in excellent condition. All the buildings have recently been painted. The marten born there this spring is thriving and is larger than any of the same age previously raised in captivity. The badgers recently installed are apparently living together more agreeably than when they first arrived. Representatives of a newsreel company were at the station in August and took pictures of the martens, badgers, and fox pups.

Attends Fur Show.--Mr. Ashbrook attended the convention of the National Association of the Fur Industry and Detroit Fur Show, held in Detroit, Mich., September 23-28.

Disease Breaks Out on Three Eastern Fox Ranches.--Doctor Hanson recently assisted in control work on an outbreak of disease among foxes on three eastern fox ranches. A considerable number of carcasses were examined in the field and some were sent to the Fur-Animal Experiment Station. Material was also forwarded to the University of Minnesota for further examination to determine definitely the cause of the losses.

Surveys Marshland on Indian Reservations.--While in the Western States during the past month, Dr. J. E. Shillinger studied the marsh areas on four Indian reservations with respect to their suitability for controlled production of muskrats and beavers.

Notes from the Rabbit Experiment Station.--John W. Meyer, who has been acting director of the U. S. Rabbit Experiment Station, at Fontana, Calif., for more than a year, was made director effective August 24.

Arrangements have been completed for obtaining soil analyses of the various fertilizer plots of the rabbit station. Macy H. Lapham, California representative of the Bureau of Chemistry and Soils, visited the station during the month to inspect the plots and outline of work. That bureau is cooperating with the Biological Survey on this experiment, which is planned primarily for the purpose of determining the value of rabbit manure as a fertilizer for the use of the fruit and vegetable growers of the region, and making it a by-product of rabbitries.

Two army officers engaged in vocational training at the army prison camp at Alcatraz, Calif., visited the station recently to perfect plans for establishing a model rabbitry as one of the enterprises connected with work for prisoners.

At the Los Angeles County Fair, held in Pomona, Calif., September 17 to 22, Mr. Meyer placed an exhibit from the Rabbit Experiment Station, which was well received.

Resigns.--Dr. Earle T. Dewey, who has been working on the cooperative project of fur-animal diseases at the University of Minnesota, resigned on August 31 to accept a position on the teaching staff at Leland Stanford, Jr., University, California.

Appointment.--Miss Minnie C. Sherva has been appointed agent to carry on technical work in the laboratory at Minneapolis, Minn., in investigations of diseases of fur animals.

Vacations.--Miss Jozy Dell Hall, of this Division, and her sister, Miss Alice Hall, of the Administrative Office, spent a delightful vacation during the month motoring through the Eastern States and Canada.

PREDATORY-ANIMAL AND RODENT CONTROL

Rodents Cause Costly Breaks in Dams in Arizona.--D. A. Gilchrist, leader of rodent control in the Arizona district, reports that stockmen in that State have recently suffered many breaks in dams of water reservoirs on livestock ranges through burrowing activities of pocket gophers and ground squirrels. During periods of drought the rodents make their homes in the embankments and so undermine them that when the rains come and the reservoirs begin to fill the water breaks through the rodent burrows and damages or destroys the dams. With no water available for the livestock on that portion of the range valuable areas are thus made useless, until the dam can be repaired and rain can again fill the reservoirs. To construct dams is expensive, a small one costing more than \$1,000, and Arizona stockmen have hundreds of reservoirs that cost from \$3,000 to \$10,000 each. Mr. Gilchrist estimates that it will cost the stockmen in his district more than \$80,000 to replace dams that have been partly destroyed in the past two months through rodent damage. An effort to eradicate the rodents from the dams at least twice a year is considered cheap insurance for such valuable property.

Depredations by Predatory Animals in Montana.--R. E. Bateman, leader of predatory-animal control in Montana, has received reports of damage to livestock and poultry during August as follows: 178 sheep, 99 lambs, and 17 turkeys, valued at \$2,479, killed by coyotes; 300 sheep, 14 lambs, and 2 cattle, valued at \$3,330, destroyed by bears; 1 calf,

valued at \$50, killed by a mountain lion; 1 lamb, valued at \$8, killed by a Canada lynx; and 3 lambs, valued at \$24, destroyed by a bobcat. This makes a total reported loss of \$5,891 from predatory animals in that State during the month.

Hunter Transferred to Virginia.--Hunter Lawrence Cheney, one of the trappers on the Wyoming force, has been assigned to the Eastern District, under the direction of James Silver, for special work on bobcat control in Virginia for the next four months. This work is being carried on in cooperation with the Virginia Commission of Game and Inland Fisheries in the interests of conserving the wild life in western Virginia. Mr. Silver accompanied Hunter Cheney to his new territory and made arrangements for cooperation in the control of bobcats with local people as well as with State officials. Mr. Cheney last year broke all records in the Wyoming district by destroying 71 coyotes and 4 bobcats during the month of September.

Conference of Hunters in Wyoming.--A conference of all hunters in the Wyoming district was held at Douglas, Wyo., September 14 to 17, immediately following the State fair, and was attended by 40 hunters, together with the district leader and his assistants. Trapping, poisoning, and den hunting and many other details of the work were discussed. Officials of the Wyoming State Department of Agriculture and of the Wyoming Wool Growers' Association addressed the conference. At one of the sessions, F. E. Garlough, director of the Bureau's Control Methods Research Project, spoke on poisoning methods.

Wyoming "Family Robinson" Good Hunters.--Orin and Oliver Robinson, who have long been connected with the predatory-animal work in Wyoming, have been two of the outstanding members of the force in that district. Together they were responsible for the control of wolves in the Jackson Hole country several years ago. Orin is now supervisor in the Rock Springs district, while Oliver has been on the honor roll for the past four years. Now comes a younger generation that promises to make the older men look to their laurels. Milton, aged 16, son of Orin Robinson, and Henry, aged 21, brother of Orin and Oliver, during August accounted for 80 predatory animals. Milton, working since June 30, has taken 90 predatory animals, while Henry, beginning work on July 25, has a record of 46 coyotes.

Old Wolf, "The Traveler," Captured.--J. C. Gatlin, leader of predatory-animal control in the Oklahoma-Arkansas district, recently received a letter from Hunter J. A. Woodward of Arkansas relative to the capture of a notorious wolf, which reads in part as follows:

"This wolf was known as 'The Traveler' for the reason that, contrary to the nature of most wolves, he would kill and eat all he wished and travel 40 or 50 miles that night and never come back to have another meal on that particular kill. Wolves usually go only a short distance after they have gorged themselves on their recent kill and will then lie down to rest. The Traveler, however, had been chased several times by dogs after he had killed some livestock and had learned to change territory and be gone six or eight weeks. He weighed at least 70 pounds and was the greatest howler ever known in Perry County. The blood would run cold in the veins of any man who heard him. Cattle would all get on their feet and start for home. Sheep would cow together, for they knew his howl indicated that something had to die before daylight. His scalp was wanted by all the hunters who knew him. After learning his habits, I set four traps on a special trap line on the trail that I guessed he would travel when he came back. Just one month later he did come back. On his way he was known to have killed a fine 2-year-old heifer. After eating all the round steak

he could carry, he started to travel. He then went to Brush Creek for a drink. The trail where my traps were placed led west of Brush Creek. While plodding along the trail full of good steak and feeling fine he trotted by the first trap 10 or 12 feet away. Then he caught the odor of the scent. As the trap was in a sandy place, I was able to learn what happened. He turned around and went back. Then he placed his foot right on the pan of the trap. The trap got a good hold, and the Traveler got a ticket for Oklahoma City. Now the cattle, sheep, and hogs are safe and the people are happy and relieved to know that this notorious wolf will never do them any more damage."

Wolves from Mexico Caught in Arizona.--M. E. Musgrave, leader of predatory-animal control in Arizona, reports that W. A. Knibbe, an old reliable hunter on the force, has demonstrated his ability to catch wolves and now heads the honor roll with five wolves and two coyotes. A pair of adult wolves with five pups crossed the Mexican border and came to the north end of the Santa Rita Mountains. Knibbe was put on their trail. Within a week he had the two old ones and three of the pups, all taken with poison. Two of the pups disappeared and it is not known whether they were killed by poison or whether they are still on the range, but Hunter Knibbe says that if they are there he will get them.

Resigns.--Edward Edgington, assistant leader in the New Mexico district, resigned at the end of August to accept a position as dairyman and landscape gardener at the New Mexico School for the Blind, at Alamogordo.

Recovers from Illness.--We are glad to report that Edward Rasmussen, assistant in predatory-animal work in Utah, has sufficiently recovered from his long illness to return to duty on August 30. It is hoped that his recovery is permanent.

Oman Transferred to Texas.--With the discontinuance of cooperative rodent-control work in Kansas, A. E. Oman, who has been leader of rodent control in that State, has been transferred to the Texas district to assist Mr. Whitehead in the rodent-control project there.

LAND ACQUISITION

Making Survey of Savannah Refuge.--Arthur A. Riemer, in charge of surveys, left for the Savannah River Bird Refuge on September 12 to make a thorough investigation of the lands covered by the Executive order that created the unit as a migratory-bird refuge. This investigation is to be followed by an accurate survey conducted by Mr. Riemer of the exterior limits of the refuge, with a view to establishing the boundary and marking it with suitable monuments.

Continue Surveys of Proposed Refuge Sites.--Robert M. Rutherford and his crew of men have completed the examination of proposed refuge units in Nevada and recently proceeded to northwestern California to pursue similar work there. This detail will be followed by examinations of other proposed refuge units in southern California. Harold W. Hicks and his party are now making examinations of units that have been proposed as migratory-bird refuges in southeastern Iowa. This work will probably be completed about September 30, after which he and party will proceed to Nebraska to make examinations of desirable units there. Shortly after the institution of work in Nebraska, Mr. Hicks will proceed to Winona, Minn., to renew negotiations for the acquisition of lands in the Upper Mississippi River Wild Life and Fish Refuge.

Surveying Parts of Bear River Refuge.--The General Land Office of the Department of the Interior has recently put a crew in the field to make surveys of the unsurveyed public lands within the Bear River Migratory-Bird Refuge. This action results from conferences held with the officials of the General Land Office and is designed to facilitate the exchange of Government lands not needed for refuge purposes for privately owned lands situated within the area to be developed as part of the Bear River Refuge.

GAME AND BIRD CONSERVATION

Denmead Honored by Waltonians.--At a meeting of members representing the various State chapters of the Izaak Walton League of America, held in Frederick, Md., on August 28, Talbott Denmead, assistant U. S. game conservation officer, was unanimously elected president of the Maryland State Council. Mr. Denmead represented the Survey at the annual convention of the Massachusetts State Division of the Izaak Walton League, held at Webster, Mass., September 13 and 14, and addressed the sportsmen present on "Game Refuges." Mr. Denmead also examined a 2,000-acre tract of land on the Massachusetts-Connecticut line that the owners have offered to the League as a possible site for trout-rearing ponds and a game sanctuary.

In Washington.--U. S. Game Protector J. V. Kelsey, of Daytona Beach, Fla., visited the Washington offices on September 11 and 12 while on annual leave.

Speak at Western Game Meeting.--At the annual meeting of the Western Association of State Game Commissioners held at San Francisco, Calif., August 23 and 24, David H. Madson, superintendent of the Bear River Migratory-Bird Refuge, gave an address on "Game Management," and U. S. Game Protector George Tonkin spoke on "Biological Survey Cooperation." Dr. H. C. Bryant, one of the Bureau's inspectors of foreign bird and mammal importations at the port of San Francisco, addressed the association on "Hawks and Owls--Good and Bad."

Returned from Western Trip.--Ernest P. Walker has returned from a trip to the West during which he visited Wind Cave Game Preserve, S. Dak., Niobrara Reservation, Nebr., and Sullys Hill Game Preserve, N. Dak. He and Mrs. Walker also spent a short vacation in Minnesota.

To Protect Georgia Bird Colony.--Hérons, wood ducks, and other birds that congregate at the Ferry Island Rookery, on the Ogeechee River in Chatham and Bryan Counties, Ga., have been placed under the guardianship of Joseph A. Dailey, of Bloomingdale, Ga., who was recently commissioned as United States deputy game warden. This special protection, to be continuous throughout the year, is made possible by the National Association of Audubon Societies, which is paying for the warden's services, in cooperation with the Biological Survey. Mr. Dailey, under the supervision of United States Game Protector E. B. Whitehead, of Savannah, Ga., has entered upon his task of law enforcement enthusiastically, and his knowledge of the people of the region will undoubtedly aid him in apprehending poachers who violate the law. Plans for similar protection of other isolated colonies of breeding birds are being considered by the National Audubon Association.

Wind Cave Notes.--The new water system has been completed at Wind Cave Game Preserve, S. Dak. The State of South Dakota is to finish the construction of the Cold Springs Creek dam in connection with building a road across the creek.

None of the big-game animals at this preserve have been much in evidence in the west pasture this summer, probably because the food supply was better in the timbered area than in former seasons.

Mr. Redington visited Wind Cave Preserve, in company with Stanley P. Young, on September 2 and 3, and conferred there with E. P. Walker and Engineer A. L. Fellows, of the Bureau of Public Roads. Protector H. Harrison Hoyt is spending his vacation in Montana.

Visitors at Sullys Hill.--During August, 2,987 persons with 876 cars visited Sullys Hill National Game Preserve, N. Dak.

Elk Refuge Notes.--The harvesting of approximately 750 tons of hay on the Elk Refuge, Wyo., was completed on August 25.

State Game and Fish Commissioner Bruce Nowlin visited the refuge on August 29 and 30. On August 30, Protector Almer P. Nelson accompanied Governor Emerson of Wyoming and Mr. Nowlin on a tour of the area that it is proposed to add to the refuge under the terms of the Winter Bill. Mr. Redington was at the refuge on August 25 and 26.

Duck Sickness at Lake Malheur.--Duck sickness appeared among the birds on Lake Malheur Bird Refuge, Oreg., on August 12. Protector George M. Benson captured some of the sick birds and took them to headquarters, where they were placed in pens for treatment. Some of them died, but the greater number of those under treatment recovered, and some of these were banded before being released. The disease that has attacked the ducks is prevalent also among the avocets, western sandpipers, and black-necked stilts, but few coots have been affected. The symptoms of the disease are the same as those of the sickness that attacked the birds and caused such heavy losses in 1925-26, but latest reports from Lake Malheur indicate that conditions do not appear to be so serious as at that time, when the coots were the birds most affected. Mr. Benson states that in his latest trips over the refuge he has observed sick and dying ducks in fewer numbers and that the birds being cared for by him at neadquarters are recovering.

Dam at Big Lake Rebuilt.--The dam at the north end of Big Lake Bird Refuge, Ark., which was built several years ago to maintain the proper water level and which was destroyed by dynamite in July by unknown persons, has now been rebuilt, the State of Arkansas co-operating with the Survey in its reconstruction by paying half the cost.

Plants Fish at Bison Range.--Protector Frank H. Rose, of the National Bison Range, Mont., reports that when the United States Bureau of Fisheries' car reached Missoula, Mont., recently with a supply of fish for planting he obtained 70 pails of them, and these were planted on the preserve on August 30.

A male buffalo calf from the Bison Range was furnished State officials in August for exhibition at the State fairs.

Trespassers on Reservations Penalized.--Two persons charged with violating the Upper Mississippi River Wild Life and Fish Refuge Act by hunting ducks on a closed area were arraigned in Federal court at Superior, Wis., on August 6, 1929, entered pleas of guilty, and were fined \$25 each. These cases were reported by Reservation Ranger Lundberg, who was assisted by Deputy Reservation Rangers Berni and Winslow. Two bird reservation trespass cases were closed in Federal court at Tampa, Fla., on July 2, 1929, by pleas of guilty and fines of \$5 each. The evidence was furnished by Protector Jay V. Kelsey, who was assisted by U. S. Deputy Game Warden Bennett.

Treaty-Act Cases Terminated--Reports Received During August

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Barmeier,Heller*, Ott**	1	Missouri	Killing and possessing a duck in close season	\$10
Brown*	1	North Dakota	Killing a sandhill crane	\$5
Harris*	1	Arkansas	Killing ducks prior to half an hour before sunrise	\$5
Harris*,DeWitt**, Jameson**	3	"	Hunting ducks after sunset	\$5 each
" "	1	"	Killing ducks after sunset	\$5
Holmes,Perry	2	Missouri	Killing ducks in close season	\$50 each
Kelsey,Bennett*, Belcher***, Garner***	2	Florida	Killing egrets and hunting on a Federal bird reservation	\$5 each
Kelsey,Conway**	2	"	Killing coots from a motor boat	\$10 each
Riddick,Deaton**	1	Arkansas	Hunting and killing ducks from a motor boat	\$10
" "	1	"	Hunting and killing ducks from a motor boat	\$5
Steele	4	Washington	Hunting ducks after sunset	\$10 each and costs
"	1	"	Killing ducks after sunset	\$10 and costs

Treaty-Act Cases Reported for Prosecution

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Barmeier	2	Missouri	Killing ducks from a motor boat; pos- sessing a wood duck
"	1	"	Killing ducks from a motor boat
"	2	"	Killing doves in close season
Harris,Jameson**	5	Arkansas	Hunting ducks after sunset
Steele,Creighton*	1	Maryland	Possessing a duck in close season
Whitehead	1	Georgia	Hunting, killing, and possessing a nighthawk

* U. S. deputy game warden.

** Deputy State game warden.

*** Cooperator.

THE SURVEY

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No. 10

GENERAL NOTES

Chief Completes Field Trip.--Mr. Redington, who with Stanley P. Young, in charge of the Division of Predatory-Animal and Rodent Control, has been on an extended western trip, visiting leaders in the various States engaged in rodent and predatory-animal control operations, game and reservation protectors, cooperating conservationists, and others with whom the bureau maintains contacts, completed the tour during the last week of October in Arizona, with visits to the offices of Dr. Walter P. Taylor, senior biologist of the Division of Biological Investigations, at Tucson, and of Mark E. Musgrave and Donald A. Gilchrist, leaders, respectively, of predatory-animal and rodent control in Arizona, at Phoenix. Arrangements were completed for leaving Phoenix for Washington on October 27.

R. W. Williams Returns to the Survey.---Following a long and distinguished service as Solicitor of the Department of Agriculture, R. W. Williams has been appointed Deputy Game Conservation Officer of the Biological Survey, effective October 7, 1929. In his new position Mr. Williams will be concerned with game conservation work in Florida and contiguous areas yet to be definitely indicated. His district headquarters will be at Tallahassee, the State capital, where he had practiced law for several years prior to his first appointment in the Department of Agriculture. His new work will be connected with the administration of the 13 Federal bird refuges in Florida and of others in adjacent States, and as liaison officer in the enforcement of the Migratory Bird Treaty Act, he will cooperate with State game conservation officials and others interested in wild-life conservation. He will be in close touch with the work of both the Federal and the State reservation and game protectors and wardens in his district.

Mr. Williams's career in the Department began with his appointment under the Biological Survey on August 1, 1902. His service from 1902 to 1915 was as expert assistant, game law assistant, and inspector of bird reservations of the Biological Survey, and as law officer in the Office of the Solicitor. In 1915 he was made assistant solicitor, and in April, 1920, solicitor of the Department.

Being an ornithologist as well as a lawyer, Mr. Williams has a combination of qualifications that has well served him and the offices with which he has been connected. He has written several articles on ornithology and wild life generally, and during his former service with the Survey was author of one of its bulletins on the appointment, powers, and duties of game commissioners and wardens (1904). Mr. Williams had long desired to be more actively engaged in wild-life conservation work, and welcomed this opportunity to return not only to the Biological Survey but at the same time to the section of the country in which he had practiced law before his first appointment with the Department.

To succeed Mr. Williams as solicitor Secretary Hyde has announced the appointment of Judge Charles Edwin Winter, formerly member of Congress from Wyoming and judge of the sixth judicial district. It is of interest to members of the Survey to note that the new solicitor is not only an eminent jurist, a poet, and a novelist, but also that he is greatly interested in wild-life conservation. It will be remembered that he was author of a bill introduced in the last Congress to authorize the purchase of lands for the extension of the boundaries of the elk refuge maintained by the Biological Survey in Wyoming.

Wild-Life Exhibit at Virginia Fair Well Received.--At the Virginia State Fair, held at Richmond, Virginia, October 7 to 12, the Biological Survey cooperated with the Virginia Commission of Game and Inland Fisheries in its exhibit, which elicited the following comment from the secretary of the commission in a letter to Secretary Hyde:

"The joint exhibit made such a wonderful hit that we will desire to put it on next year and trust that the Bureau of Biological Survey will again lend us its help. Over 200,000 people visited this fair, and there was always a crowd around our exhibit asking pertinent questions, showing that the gospel of wild-life conservation being preached by your Bureau of Biological Survey and this and other State game departments is not being preached in vain, but is bringing direct educational results."

Lisle Morrison, in charge of the Bureau's exhibits, spent nearly two weeks at Richmond assisting officials of the game commission in planning and supervising the exhibit. This consisted of a display of live young quail in pens, showing methods of propagating and rearing these birds, and of wild turkeys, wild ducks, and a fawn; mounted specimens of harmful and beneficial hawks and of wild game; and various posters and pictures giving valuable facts relating to the conservation of wild life. The portrayal of the activities of the Virginia Commission of Game and Inland Fisheries was made complete by a number of aquariums containing various species of fishes found in the State, arranged in cooperation with the United States Bureau of Fisheries. Officials of the Virginia Fair state that they have received "very favorable comments concerning the exhibit."

Present Papers at A. O. U. Meeting.--The following papers by members of the Biological Survey were included on the program of the forty-seventh stated meeting of the American Ornithologists' Union, held at the Academy of Natural Sciences, Philadelphia, Pa., October 22-24: "Birds of Paradise on Exhibition in the United States" and "Echoes of 1883: How the First Check List Came to Be," by Dr. T. S. Palmer; "Remarks on a Few Unrecognized Florida Subspecies," by Arthur H. Howell; "The Migratory Status of the Mourning Dove," by Frederick C. Lincoln; and "Conservation of Waterfowl," by Dr. Harry C. Oberholser. Other members of the Bureau who attended sessions of the meeting were W. C. Henderson, Dr. W. B. Bell, W. L. McAtee, Edward A. Preble, Vernon Bailey, Herbert L. Stoddard, Miss Phoebe Knappen, Clarence Cottam, Charles H. M. Barrett, and Mrs. Jane S. Elliott. Dr. Joseph Grinnell, of California, was elected president of the Union to succeed Dr. Alexander Wetmore, and Dr. T. S. Palmer and W. L. McAtee were re-elected secretary and treasurer, respectively. Mrs. Vernon Bailey was made a fellow of the Union, the first woman to be so honored by the organization.

Official Publications.--The following official publication of the Bureau was issued during the month:

"Game Laws for the Season 1929-30," by Frank L. Earnshaw and Frank G. Grimes. Farmers' Bulletin 1616, 46 p. Received October 5.

Radio Talks.--Mr. Redington is scheduled to give a radio talk on "Profit and Loss to American Agriculture Through Wild Life" in the Farm and Home Hour Program of the Department and the National Broadcasting Company on Tuesday, November 19, at 1:30 p.m., Eastern Standard Time, from Station WRC, at Washington, D. C., and 32 associated stations.

On October 7, Frank L. Earnshaw, administrative assistant in the Division of Game and Bird Conservation, gave a radio talk on "The 1929-30 Game Laws" over the same network broadcast of the Department.

BIOLOGICAL INVESTIGATIONS

Returns From Field Trip.--Vernon Bailey has returned to Washington from field work in Arizona, where he has been studying the animal life and the life zones of the Grand Canyon and the surrounding country. These investigations were practically a continuation of those made by Dr. C. Hart Merriam and Mr. Bailey during the summer of 1889 in the San Francisco Mountain region. The problems involved in a study of the distribution of life in the Grand Canyon are complex and of unusual interest in their bearing on the rest of the country. From the bottom of the canyon to the top of San Francisco Mountain, only 50 miles to the south, all the climatic zones between the Gulf of Mexico and the Arctic Circle are represented, each with its characteristic species of animals and plants. Many of the practical local problems of animal life, such as the habits and requirements of the mule deer on the Kaibab Plateau, of the mountain sheep below the canyon rim, and of the antelope both in and outside the canyon, were given as much attention as time permitted. Studies were made of Abert's squirrels on the south and the Kaibab squirrels on the north side of the canyon and of the distribution and habits of all other animals of the region, and series of specimens were collected. On the return trip Mr. Bailey stopped at Norman, Okla., for conference with officials of the State University relative to a biological survey of that State, and he spent two weeks at Mammoth Cave, Kentucky, to complete field work being done there in cooperation with the Kentucky Geological Survey.

Taylor on Ecology Field Trip During Summer.--At the request of the president of the University of Arizona, Dr. W. P. Taylor spent some time between July 24 and August 14 with a field ecology party of the university. Localities visited included Mesa, Sacaton, Florence, Superior, East Verde Valley, Long Valley, Coconino National Forest, Southwestern Forest Experiment Station, and San Francisco Mountain. In addition to collecting many specimens and making rather close studies of the animal and plant life, the party benefited by the discussion of many scientific problems with specialists of the University of Arizona and its agricultural experiment station; the Boyce-Thompson Southwestern Arboretum; the Desert Laboratory; and the Southwestern Forest Experiment Station.

Doctor Taylor recently inspected the Williams and Seligman experimental grazing plats, and also the forest management and grazing plats near Flagstaff.

Continues Elk Investigations in Wyoming.--O. J. Murie has continued his studies of the life habits of the elk in the Jackson Hole region. In the spring and early summer he was encamped in Two-Ocean Pass; this camp was abandoned about July 1 in favor of a site near the head of Whetstone Creek, a northern tributary of Pacific Creek, which afforded easy access to Big Game Ridge and other areas much frequented by elk in summer. Here, on the summer range, he gave special attention to the distribution of the various species of forage plants and noted the preference of the animals in regard to them. His investigations also included the collection of about 75 species of food plants for analysis to determine their nutritive value; observations relative to the proportion of calves to does, and of bucks to does; and other matters connected with increase; and considerable work on the smaller mammals and on the bird life of the region.

FOOD HABITS RESEARCH

Refuge Surveys.--Neil Hotchkiss and Leonard E. Ekvall have completed their fall work on the migratory-bird refuge survey and have returned to Washington. States visited by them since the last report are Michigan, Ohio, and West Virginia. The western party, consisting of Charles C. Sperry and A. C. Martin, has been working in Oregon, California, Nevada, and Arizona, and will soon complete the season's field work. In the mid-west F. M. Uhler and Fred A. Warren have been occupied in Wisconsin, Illinois, and Kentucky and will begin work in the middle Mississippi region soon.

To Conclude Season's Study of Duck Disease Soon.--There has been a late outbreak of duck disease at Tule Lake, Calif., which E. R. Kalmbach has been studying, but indications are that field work for the season there can soon be concluded. Material bearing on outbreaks of duck maladies in other parts of the West, particularly samples of alkali and alkaline water, has been accumulated, and it is hoped that analysis of this during the winter will aid in deductions concerning the duck sickness.

Mid-West Game-Bird Studies Under Way.--Herbert L. Stoddard recently returned from a field trip in Minnesota, Wisconsin, and Michigan in the interest of the cooperative investigation of upland game birds in that region. Work is well under way in Minnesota and Wisconsin, where fellows of the State universities had previously been selected. A fellow has now been appointed at the University of Michigan and Mr. Stoddard assisted him in starting the work.

FUR RESOURCES

Fair Helps California Rabbit Industry.--The superintendent of the Los Angeles County Fair has written the Biological Survey that the rabbit exhibit displayed by John W. Meyer, director of the Rabbit Experiment Station, from September 17 to 22 was considered exceptionally fine and that it attracted much attention. The Bureau's publications on rabbits were in great demand not only by rabbit breeders in attendance but by several thousand visitors to the rabbit department. The superintendent stated that the booth was observed by between 40,000 and 50,000 persons, who now know how the Government is assisting in the development of the rabbit industry, particularly through the Rabbit Experiment Station. It was stated also that the exhibit had "undoubtedly helped the industry and will no doubt have a tendency to place it on a higher standard." The support of the department is asked for next year's fair. Mr. Meyer reports that nearly twice as many rabbit breeders showed stock this year as at the 1928 show, and while the classes were no larger, there was a distinctly keener competition. Breeders were afforded opportunity to examine the animals and to form their own opinions of their possibilities. Mr. Meyer also states that more than 150 rabbit breeders of southern California attended a meeting on September 22 held in connection with the county fair.

Attends Meeting of Humane Society.--Dr. J. E. Shillinger attended the meeting of the American Humane Association held at St. Louis, Mo., during the last week in September and delivered a paper on "Humane Aspects of Fox Farming." He illustrated his talk by the Department's motion picture made at the U. S. Fur-Animal Experiment Station, "How to Handle Foxes."

Agent Appointed at Los Angeles.--Charles C. Prouty has been appointed agent, effective October 1, to assist in the cooperative project on rabbit diseases being conducted at the University of Southern California, at Los Angeles.

PREDATORY-ANIMAL AND RODENT CONTROL

Local Citizens Assist in Stopping Thefts.---Hunter Earl May, working in Arkansas, caught 14 wolves during September; five of the 14 were stolen, however, and he got credit for catching only 9. One of the wolves was held alive in camp for bait purposes and was stolen while May was attending his trap line. J. C. Gatlin, at that time leader of predatory-animal work in Arkansas and Oklahoma, received letters from local citizens advising that they were putting on an educational and publicity campaign to stop the theft of animals from traps of Government hunters. Voluntary assistance of this kind is appreciated.

Wins Prize in Rifle-Shooting Contest.---A. M. Day, leader in the Wyoming district, modestly informs us that he won second place in the rifle-shooting contest conducted in connection with the hunters' conference held in his district. Mr. Day is to be congratulated on his ability with the rifle as indicated by his rating in competition with such crack riflemen as are included in the Wyoming force. Hunter Ben Kroll, of Rock Springs, won first prize and was rewarded by a gift of a copy of the recently published "The Last of the Pack," of which Stanley P. Young is joint author.

Effective Work in Pocket-Gopher Control Completed in Wyoming.---Mr. Day reports that the first field-party work to control pocket gophers on private lands in Wyoming was recently brought to completion in Star Valley. An area of 4,068 acres was treated in this undertaking, in which both poison and traps were used. Mr. Day states that the results were very satisfactory, and that 5,897 pocket gophers were caught in traps.

Prairie-Dog Control Improves Grazing on National Forest.---L. L. Laythe, leader in the Colorado district, received a letter from the supervisor of the Rio Grande National Forest stating that the action taken in eliminating prairie dogs from the San Luis Valley resulted in such an increase in forage as to permit the grazing of approximately 150 additional cattle during the four-year period of the campaign.

Counties in South Dakota Cooperating in Rodent Control.---A new law governing the distribution of poisons in South Dakota, which became effective on July 1, 1929, makes it necessary that cooperative agreements be made between the Bureau and the various counties wishing to undertake rodent control. By the end of the first quarter of the fiscal year, agreements had been made by nine counties. Commissioners of several others are taking steps to enter into such agreements.

Goldman Changes Headquarters.---L. J. Goldman, leader of predatory-animal control in Idaho, has moved his headquarters from Gooding to Pocatello, in order to be in closer touch with the cooperative predatory-animal work that is being undertaken in the southeastern part of this district. Mr. Goldman's new address is P. O. Box 615, Pocatello, Idaho.

Transferred to Colorado.---R. P. McFarland, formerly assistant leader of predatory-animal control in the Idaho district, has been transferred to the same position in the Colorado district.

Leaders Exchange Headquarters.—On October 1, A. E. Gray, formerly leader in the New Mexico district, took charge of the predatory-animal work in the Oklahoma-Arkansas district with headquarters at Oklahoma City, and J. C. Gatlin, who was in charge of predatory-animal work in Oklahoma and Arkansas, was transferred to the New Mexico district.

Detailed to Alaska.—H. H. Gubser, who has been working with Stanley G. Jewett as assistant in predatory-animal control in the Oregon district, has been transferred to Alaska to represent the Bureau in the cooperative predatory-animal control project, which is being directed by R. K. Stewart, who is in the employ of the Territorial Government.

Appointments.—Harold H. Haecker, as the result of a recent examination, has been appointed to the position of junior biologist and will assist Louis Knowles in the rodent-control project in South Dakota. Mr. Haecker will fill the position made vacant by the transfer of W. W. Smith to the control-methods research project.

Adolph S. Hamm successfully passed the examination for senior biological aide and was appointed to that position in Wyoming effective October 1. For several years Mr. Hamm has been employed as agent in connection with rodent-control work in that district.

LAND ACQUISITION

On Field Trip.—Mr. Dieffenbach left Washington on October 9 for a month's field trip, the first stop of which was at Winona, Minn., where he assisted representatives of the Solicitor's office on the Upper Mississippi Refuge in work connected with condemnation cases. From Winona Mr. Dieffenbach proceeded to points in Nebraska to examine proposed refuge units in that State.

Returns from Savannah River Refuge.—Arthur A. Riemer returned to Washington on October 2 from his trip to the Savannah Refuge, where he was engaged in work looking to the definition of exact boundaries. On account of high waters considerable difficulty was experienced in conducting the work. United States Game Protector E. B. Whitehead reports that on October 5 the portion of the marsh on which Mr. Riemer had been working was covered with twelve feet of water, and that the highest stage of the flood would not be reached until some time within the following week. En route to Washington Mr. Riemer stopped at New Holland, N. C., to interview persons interested in the establishment of Lake Mattamuskeet as a bird refuge, and also to make a preliminary examination of the area.

Status of Proposed Refuge Surveys.—Harold Hicks, who has been in charge of one of the field parties engaged in making preliminary investigations of proposed refuge units, has returned to Winona, Minn., to assist in the acquisition work on the Upper Mississippi Refuge. Carey H. Bennett is now in charge of Mr. Hick's party, which since concluding its work in Idaho has been engaged on examination work in Nebraska. Upon completion of work in Nevada Robert M. Rutherford's party proceeded to California, where it is now engaged in examining proposed refuge areas.

GAME AND BIRD CONSERVATION

On Vacation in Vermont.--Mr. Sheldon spent two weeks during the month on vacation in Vermont. Shortly prior to leaving on his vacation he was ill for several days with the grippe and was suffering from severe burns on his hand received when helping to extinguish a grass fire in a field near his home.

Talbott Denmead was in Richmond, Va., October 7 to 9, where he conferred with the State game authorities relative to the enforcement of the migratory bird treaty act. While there he attended the Virginia State Fair and had opportunity to talk to many sportsmen and others who visited the Survey's exhibit.

Protector's Son Injured.--U. S. Game Protector J. E. Perry informs us that his son, J. E. Perry, Jr., was seriously injured in a football game on October 2. It is the earnest hope of Protector Perry's friends in the Survey that his son may have an early and complete recovery.

Death of Deputy Warden Frank Pierce.--The Survey regrets to announce the death on October 16 of U. S. Deputy Game Warden Frank Pierce, of Salem, N. J. Mr. Pierce was taken ill while he and Game Protector Albert Stadlmeir were performing patrol duties about Great Bay and vicinity, on the eastern coast of New Jersey, with the motorboat Brant on October 9. It was necessary to put back to shore, call a physician, and remove Mr. Pierce to a hospital in Atlantic City. Everything possible was done, but without avail. The physician's report showed pneumonia as the cause of death. Mr. Pierce was 68 years of age and had been a U. S. deputy game warden since September, 1919. He had been actively interested in game conservation for many years and the cause loses a true friend. Mr. Pierce is survived by one sister, Miss Mary Pierce, with whom he lived at the family homestead in Salem, N. J., and to whom the members of the Survey extend heartfelt sympathy in her bereavement.

Three U. S. game protectors have recently been appointed: Chester A. Leichhardt, of Kelso, Wash., whose district for the present will be the same as that of former Protector Ray C. Steele--all of Oregon, and Washington west of the Cascade Mountains, with headquarters at Portland, Oreg.; Floyd A. Johnson, of Wray, Colo., whose district for the present will be the State of Louisiana, with headquarters at New Orleans; and Louis A. Branchaud, of Rutland, Vt., whose district for the present will be the District of Columbia, the Potomac River, and adjacent counties in Maryland and Virginia, with headquarters at Washington, D. C.

Flood in New Mexico.--U. S. Game Protector B. R. Britton reported that on September 23 the Rio Grande River in Socorro County, N. Mex., reached the highest flood stage recorded within the memory of the present inhabitants, large districts being under 3 to 10 feet of water. At the time Mr. Britton wrote it could not be ascertained what the result of this flood would be on the ducking grounds in that section. A number of snowy egrets were noted in the back waters after the flood. Few ducks remained, however, as they probably had gone on to the Elephant Butte Refuge, where there was clear water.

Large Private Game Refuge Established.--An article in a recent number of The American Field gives details regarding the establishment of a 60,000-acre game and fish refuge on St. Simons Island, off the coast of Georgia, by Howard E. Coffin, who is cooperating with the Biological Survey and serving as protector of the Bureau's Blackbeard Island Bird Refuge near Sapelo Island at the entrance to Sapelo Sound, Ga. Mr. Coffin is the owner of St. Simons, as well as of Sapelo Island, which latter he maintains as his personal estate. Shelter and protection will be provided on the new refuge for all native species of game and bird life, including deer, wild turkeys, quail, and waterfowl, and experiments will be made there in the introduction of pheasants, peafowl, and other exotic species. Mr. Coffin's new refuge is practically a virgin wilderness, and is the most recent instance of this form of conservation by men of wealth. Owners of many other large tracts are establishing refuges on their properties, and in this way effectively supplementing the work of the Federal and State Governments in wild-life conservation. St. Simons Island has historic interest from the fact that the town and fort of Frederica were erected there by General Oglethorpe, founder of the colony of Georgia, as a bulwark against the invasions of the Spanish from Havana and St. Augustine.

Sullys Hill Notes.--Two young deer were received on October 4 at Sullys Hill Game Preserve, N. Dak., from the Upper Mississippi River Wild Life and Fish Refuge.

During the period October 1, 1928, to September 30, 1929, 21,004 persons with 4,936 cars visited this preserve.

Buffalo Calves Born This Year.--A total of 102 buffalo calves have been reported born this year at the big-game preserves administered by the Survey, as follows: 51 at the Bison Range; 28 at Wind Cave Preserve; 20 at Niobrara Reservation; and 3 at Sullys Hill.

Biologists Visit Lake Malheur.--E. R. Kalmbach, Charles C. Sperry, and A. C. Martin, of the Division of Food Habits Research, visited Lake Malheur Refuge, Oreg., September 8 and 9, to investigate conditions there relative to duck sickness. Protector George M. Benson stated in a recent report that the larger species of ducks were apparently recovering from the epidemic but that the green-winged teal still seemed to be considerably affected.

Reservation Protectors Visit Various Refuges.--Protector H. Harrison Hoyt, on his return to Wind Cave Game Preserve, S. Dak., from a vacation spent in Montana, visited en route the Elk Refuge and the Pathfinder Bird Refuge, Wyo., and the North Platte Bird Refuge, Nebr. He reports wild-fowl conditions to be excellent at North Platte. Protector W. D. Parker visited Chase Lake Bird Refuge, N. Dak., on September 22. New signs were posted where needed and the entire refuge was inspected. Many thousands of ducks were on this lake.

Forage Conditions Good at Niobrara and Wind Cave.--Because of rains late in the summer a heavy stand of grass for grazing is reported on the north pasture at Niobrara Reservation, Nebr., and on some of the hills the grass was still green and growing the last of September. At Wind Cave Game Preserve, S. Dak., many of the forage grasses have cured and will make excellent feed. At the same time, rainfall heavier than normal has kept new growth coming on so that the entire range appears quite green, and the game animals are reported to be in fine condition.

Antelope Killed during Hunting Season in Wyoming.--On the first day of the open season on antelope in Wyoming (September 29), it was estimated that 275 of these animals were killed on the Pitchfork Ranch on the Gray Bull River in Park County. Protector Almer P. Nelson, of the Elk Refuge, spent two days at this ranch, arriving the night before the season opened, and states that he believes that not more than 50 antelope were killed at this place on the second day. The owners of the land afforded considerable protection to the antelope, for since they had cattle and sheep grazing on the antelope area, they permitted only a few hunters on the south side of the river. The antelope were not so easily hunted the second day of the season and a large number of them left the flats and went back onto the foothills.

Elk Refuge Notes.--All the hay crop has now been stacked at the Elk Refuge, Wyo., and a final check on the quantity harvested gives the number of tons as 900. This is only about half the normal yield, because of unfavorable growing weather during the summer. Troy Pratt, an employee at the refuge, on October 1 saw a large bull moose on the Izaak Walton League addition. This animal advanced to within 300 feet of a tractor.

Congratulations!--An interesting addition was made in the personnel at Sullys Hill Game Preserve recently through the arrival of Mary Helen, daughter of Protector and Mrs. Wesley D. Parker.

Dillon Inspects Upper Mississippi Refuge.--W. R. Dillon, assistant U. S. game conservation officer, visited the Upper Mississippi Refuge September 14 to 17 and discussed important matters connected with administration of the refuge. On October 7 he was in New York City and vicinity in the interests of enforcement of the migratory bird treaty act and the regulations.

Cruisers Reconditioned.--Upper Mississippi Refuge cabin cruisers Wood Duck and Widgeon, which have been on the War Department ways at Fountain City, Wis., undergoing recaulking, repainting, and minor repairs, were returned to the water on October 4 and are again ready for service. The work was performed by the War Department on actual cost basis, which resulted in a considerable saving to the Bureau.

Fur-Farm Operator Arrested.--Superintendent R. C. Steele reports that on October 3 an important arrest culminated an investigation conducted to put an end to the serious infractions of the Upper Mississippi Refuge regulations and the Wisconsin State game laws. These were being perpetrated on a large scale on refuge and adjoining lands. For some time rangers had been reporting evidence that muskrats were being dug out alive and sold as breeding stock. A concerted effort was made, therefore, to discover the operator responsible and thus effectively destroy this illicit enterprise. Junior Ranger Hall and United States Game Protector Shaver, acting in conjunction with three Wisconsin wardens, succeeded in locating the "market." The party apprehended was a licensed fur farmer and apparently was using his farm and license as a camouflage for illegal practices. When apprehended, he was bringing in 70 live muskrats, a day's catch in the Mississippi Bottoms. The arrest was made at 11 o'clock at night as he was returning from a secret visit to a point where he had met his trappers and received the day's bag. In addition, 20 muskrat pelts, found in his possession, were seized. Arraigned before the county judge at La Crosse, Wis., on the following day (October 4), he entered a plea of not guilty, and in consequence the case was set for trial by jury. By order of the court the 70 live muskrats were released on the refuge. Superintendent Steele is exceedingly gratified over this arrest, as it is one of far-reaching consequence.

Upper Mississippi Game-Law Violations.--On evidence furnished by Ranger Lundberg and Deputy Ranger Berni, two hunters charged with shooting wood ducks in the Mississippi River Bottoms near Nelson, Wis., on September 29, were arraigned in State court and fined \$50 each. Two others were fined \$50 each in State court for hunting ducks after sunset in the river bottoms near Alma, Wis. The evidence in these cases was furnished by Deputy Rangers Berni and Pritchard. Junior Ranger Hall apprehended two commercial fishermen of Dresbach, Minn., on September 21 for seining in the waters of the Mississippi in violation of State law. The accused were arraigned before a municipal judge at Winona, Minn., entered pleas of guilty, and were fined \$50 each. In addition, the seine, boat, and other valuable equipment were confiscated. Two other cases reported by Junior Ranger Hall involving violations on the refuge of Minnesota game laws resulted in convictions and fines of \$10 each.

Public Rights on Waters Within Fur Farm in Controversy.--A development of importance to the Upper Mississippi Refuge administration is a case in circuit court in which sportsmen claim the right to hunt on navigable waters within the boundaries of a licensed fur farm, the officials of the farm denying such right. Some months ago the Trempealeau Bottoms, comprising more than 5,000 acres, were taken over by a company for development as a muskrat farm. Incidentally, this area while subject to acquisition for the refuge has not been acquired as the price is considered exorbitant.

Officials of the fur farm had warned the public that an entry for the purpose of hunting would be regarded as trespass and prosecuted accordingly. On the morning the hunting season opened an organized band of about 100 hunters made a peaceful invasion of the property, entirely with the use of skiffs and canoes, and as they approached a wire fence hastily erected by the company they stepped into the water, carefully lifted the canoes over the fence, got into the canoes again, and paddled into the fur farm, where they proceeded to shoot. It was admitted that none had set foot on the shore. The fur-farm guards watched the procession without offering resistance. On the following day, however, a temporary injunction was obtained by officials of the fur farm, enjoining hunters from entering the property either by land or water. Being permitted to file an answer within 20 days, attorneys for the sportsmen entered a cross complaint alleging that the fur-farm corporation was obstructing navigable waters.

The outcome of the trial will be awaited with considerable interest. It is understood that the unsuccessful party to the suit will appeal the case to the Supreme Court of Wisconsin. The contention of the fur-farm officials seems to be that the waters used by the sportsmen in gaining entrance are not public navigable waters, as they are produced and fed by a number of Artesian wells that were drilled to provide the fur farm at all times with an adequate supply of water.

Former Superintendent Cox in Rio de Janeiro.--Letters have been received by members of the staff of the Winona office from W. T. Cox, former superintendent of the Upper Mississippi Refuge, who is now in Rio de Janeiro, where he has taken over the duties of chief forester for the government of Brazil. The following quotation from one of the letters will be of interest to his many friends in the Biological Survey:

"The people we have met have been very kind and it looks as if we should have a most pleasant time in Brazil. Even the work is beginning to shape up somewhat. The mountains clothed in tropical vegetation with palms of many kinds in evidence seem strange. Gorgeous flowering trees with masses of red, yellow, purple, and silver blossoms light up the hillsides. Only an occasional plant and bird looks familiar. From our rooms the view

of the mountains and harbor is simply wonderful. We can see all the ships entering and leaving the bay and watch the water sports, which seem to be quite a feature here."

New Ranger Cabins Completed.--Two new cabins have recently been completed for use of rangers at the Upper Mississippi River Refuge, one on the shore of Lawrence Lake in Houston County, Minn., and the other near Rice Lake several miles north of La Crosse, Wis.

Treaty-Act Cases Terminated--Reports Received during September

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Barmeier, Creech*	2	Missouri	Killing a duck from a motor boat	\$100 each
Barmeier, Creech*, Bell**	1	"	Killing ducks from a motor boat	\$50
Birsch, Williams**	6	North Carolina	Killing and possessing wood ducks	\$10 each
Holmes, Hough**	2	Iowa	Hunting ducks after sunset	\$10 each
Merovka	2	Missouri	Killing and possessing yel- lowlegs and sandpipers	\$10 each
Shaver, Vogel*	1	South Dakota	Selling ducks	\$25

* U. S. Deputy Game Warden

** Deputy State Game Warden

THE SURVEY

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No. 11

GENERAL NOTES

Return From Field Trip.--Mr. Redington, who with Stanley P. Young, in charge of the Division of Predatory-Animal and Rodent Control, has been making a tour of western field stations, conferring with cooperators, and viewing proposed wild-life reservations and improvements on bird refuges, returned to Washington on November 2 after an absence of nearly four months. Fifteen States were visited and more than 15,000 miles of the trip was by automobile, to reach points not accessible by rail, and one trip was by airplane over the Wichita National Forest in Oklahoma. In addition to obtaining intimate acquaintance with the details of cooperation in the control of predatory wild animals and injurious rodents and with the field forces of the Bureau engaged in the work, Mr. Redington gathered first-hand information regarding field work for bird conservation, including progress on the engineering operations at the Bear River Migratory Bird Refuge, Utah. He also visited the temporary field laboratory of the Bureau at Klamath Falls, Oreg., where studies had been conducted during the season by E. R. Kalmbach, of the Division of Food Habits Research, for controlling the malady among wild ducks and other migratory birds.

Additional Funds Urged for Conservation.--Additional appropriations for the conservation work conducted by the Forest Service, the National Park Service, the Biological Survey, and the Bureau of Fisheries were urged by a delegation of the American Forestry Association that called on President Hoover on October 30. Headed by George D. Pratt, president of the association, the delegation asked the President that full appropriations authorized under the Clarke-McNary Act, the Woodruff-McNary Act, and the McSweeney-McNary Act be granted by the Bureau of the Budget.

Buffalo in Favor as Emblem.--At the request of Secretary Ray Lyman Wilbur, the eagle on the official seal of the Department of the Interior has been changed to a buffalo, in order to typify more accurately the work of that department in building up the West. The new seal shows a buffalo bull standing in a left position on a prairie with mountains and the rising sun in the background.

This historic animal has been accorded further prominence in the outside decoration of the new administration building of the Department of Agriculture now nearing completion. Between the windows of the second and third floors around the entire main structure, the chief ornamentation consists of a medallion buffalo head in bas-relief.

Official Publications.--The following official publications of the Bureau were issued during the month:

"Reindeer Recipes," by Dr. Louise Stanley and Fanny Walker Yeatman, of the Bureau of Home Economics. Leaflet 48-L, 8 p., illus. Received October 30. (A joint contribution from the Bureau of Home Economics and the Bureau of Biological Survey.)

"Ear Mange in Foxes: Its Treatment and Eradication," by Dr. Karl B. Hanson. Leaflet Bi-1053 (multigraphed), 2 p. Received November 5.

- "Game Laws for the Season 1929-30" [Revised], by Frank L. Earnshaw and Frank G. Grimes. Farmers' Bulletin 1616-F, 46 p. Received November 12. (A reprint containing a few corrections and revisions.)
- "Fur Laws for the Season 1929-30," by Frank L. Earnshaw and Frank G. Grimes. Farmers' Bulletin 1618-F, 30 p. Received November 14.
- "Hygiene in Fox Farming," by Dr. Karl B. Hanson. Leaflet 47-L, 6 p., illus. Received November 14.
- "Improved Reindeer Handling," by Lawrence J. Palmer. Circular 82-C, 18 p., illus. Received November 22.
- "How to Make a Cat Trap," by James Silver and Frank N. Jarvis. Leaflet 50-L, 4 p., illus. Received November 23.
- "Report of the Chief of the Bureau of Biological Survey," by Paul G. Redington. 34 p. Issued November 27.

Radio Talks for December.--Biological Survey talks for the month of December in the Department's radio program are scheduled as follows:

Some Household Pets and Their Care (Primer for Town Farmers series).....	December 11.
Bird Houses (Primer for Town Farmers series).....	December 18.
Fur Farming (Uncle Sam's Naturalists series)	December 20.
Industrializing the Steeds of Santa Claus, by W. C. Henderson, in the Farm and Home Program of the Department and the National Broadcasting Company, 1:30 p.m., E. S. T.	December 24.

The Last Stand of the Pack is the title of a 295-page book written by Arthur H. Carhart (formerly junior recreational engineer of the Forest Service), in collaboration with Stanley P. Young, in charge of the Division of Predatory-Animal and Rodent Control, published in September, 1929, by Sears & Co., New York City. It is a tale of some of the last of the big gray wolves of the West and is dedicated to the "followers of the last frontier," the predatory-animal hunters of the U. S. Biological Survey, who are characterized by the authors as "the friends of all animals; the compassionate regretful executioners of animal renegades when such outlaws must die that other wildlings may live." The authors add that the Government hunters "made these true stories with their own acts--it has been our privilege to record them." The biographies of such notorious predators as those familiarly known throughout their former domain as "Old Lefty," "Three Toes," "The Phantom Wolf," and other renegades of the stock ranges are here brought together under one cover.

BIOLOGICAL INVESTIGATIONS

Study Deer Conditions in Pennsylvania.-- Doctor Bell and Vernon Bailey spent November 6 to 9 in Clearfield and Center Counties, Pennsylvania, studying conditions affecting deer in cooperation with the Bureaus of Plant and Animal Industry and the Pennsylvania Board of Game Commissioners. In general, the deer were plentiful and in good condition, and smaller game, especially the ruffed grouse, which is under total protection, was found to be increasing in some places. The observers reported a shortage of acorns and other nuts, which indicates a dearth of winter food for many species.

Investigate Game Situation in Virginia.--Vernon Bailey and James Silver spent November 12 and 13 in Bath County, Va., looking over the game situation with special reference to the relation between predatory animals and deer, in connection with the operations recently initiated for the control of bobcats. Gray foxes and some other fur-bearers are reported to be fairly abundant.

Studies Big Game of Yellowstone Park.--O. J. Murie recently completed a study of conditions affecting the elk and other large game animals in and adjacent to certain parts of Yellowstone Park. His investigations were undertaken in collaboration with a committee engaged in work concerning the boundaries of the park, which may be changed to conform better with physiographic and game conditions.

Addresses Biological Society.--On the evening of November 2, A. H. Howell gave a talk before the Biological Society of Washington on "Recent Notes on Florida Birds."

FOOD HABITS RESEARCH

Conclude Season's Field Work.--E. R. Kalmbach has closed the season's investigation on the duck malady at Klamath Falls, Oreg., and has returned to Washington. The duck-disease problem is by no means regarded as solved, but considerable information on various aspects was collected that will have an important bearing on further attempts to identify the trouble definitely. On the evening of November 30, Mr. Kalmbach spoke before the Biological Society of Washington on "Notes on Waterfowl Sickness in 1929," his talk being illustrated with lantern slides.

A. C. Martin and Fred A. Warren, who have been making surveys of proposed Federal migratory-bird refuge sites, have ended their field work for the season and are now engaged in identifying plants and in other work of a botanical nature in the Washington office.

Studies Quail Problem in Eastern States.--Herbert L. Stoddard has made several short field trips during the month mainly in the interest of quail development. After visiting points in all sections of the State of Connecticut, he made recommendations for the treatment of the quail problem there. Inspection was made of a field trial ground in New Jersey and of one in Delaware that is a game refuge, with a view to recommending improvements for quail.

Pursues Studies in Philadelphia.--Following the close of the American Ornithologists' Union meeting, Miss Phoebe Knappen spent several days in libraries in Philadelphia, extracting economic notes on birds from books not available in Washington.

Appointment.--Miss Alma M. Swords has been appointed junior biologist to carry on the work of identification of beetles found in the stomachs of birds and other animals and to care for the reference collection of Coleoptera. This is a line of work formerly done by L. L. Buchanan, who last summer was transferred to the Bureau of Entomology.

Returns from South Seas Expedition.--Dr. A. K. Fisher, senior biologist, returned to Washington on November 20 after an absence of nearly 8 months, during which he represented the Biological Survey and the U. S. National Museum on an expedition to the South Seas under the auspices of the Hon. Gifford Pinchot. He reports that the members of the party had a very interesting trip and made natural-history collections in the Galapagos, Marquesas, and Tuamotu groups of islands. Some of the species of birds collected were quite rare and previously were not represented in the National Museum. The last place visited was Tahiti Island, where the party disbanded and took steamer for San Francisco. Their yacht was taken back to New York by the crew. Doctor Fisher on his return across the continent made brief stops with field men at San Francisco, Reno, Ogden, Salt Lake City, and Denver.

FUR RESOURCES

Talks to Eastern Star Group.--On November 6, Mr. Ashbrook gave a talk on furs, illustrating it by showing the pelts of various fur animals, to members of the Order of the Eastern Star, at Silver Spring, Md.

Surveys Muskrat Marshes.--Dr. J. E. Shillinger conferred with the State game warden of Maryland, at Baltimore, on November 6, concerning plans for studying muskrat raising. On November 12, he made a trip to Trenton, N. J., to confer with the State Board of Fish and Game Commissioners, and later visited a number of muskrat farms in New Jersey and Delaware.

Attends Veterinarians' Meeting.--Dr. Karl B. Hanson gave an address before the meeting of the Central New York Veterinary Medical Association at Syracuse, N. Y., on November 20, and showed the Department's motion picture "How to Handle Foxes."

Reconstructing Rabbit Exhibit.--John W. Meyer, director of the Rabbit Experiment Station, at Fontana, Calif., is reconstructing the rabbit exhibit for use at the rabbit show in Colorado Springs, Colo., and at the annual meeting of the American Rabbit and Cavy Breeders Association, to be held in Fort Worth, Tex., during the early part of December. The rabbit breeders are cooperating by paying all transportation charges on the exhibit from Fontana to these two places.

Rabbit Breeders Meet at Station.--The Fontana, Calif., Rabbit Breeders' Association held a meeting at the Rabbit Experiment Station on November 5, at which the president of the California Rabbit Marketing Association gave a talk on marketing rabbits and on the tariff on rabbit skins.

Field Survey of Rabbitries to be Made.--A series of field trips has been outlined by Mr. Meyer for the purpose of studying disease conditions among rabbits. Accompanied by Charles C. Prouty, who was recently appointed agent to assist in the cooperative rabbit-disease studies at the University of Southern California, he plans to visit the various rabbit-producing centers of southern California. Through this survey it is hoped to gain information that will show the similarities or differences of disease conditions in the various localities.

Notes from the Fur-Animal Experiment Station.--The foxes at the Fur-Animal Experiment Station have furred out nicely despite continued warm weather. The two off-colored minks that were donated to the station last September have shown marked improvement, and indications are that they will acquire a typical eastern mink color. Henry Ebert has been temporarily appointed caretaker of the station to fill the position made vacant by the resignation of W. F. Mullady.

PREDATORY-ANIMAL AND RODENT CONTROL

Further Cooperative Funds in Wyoming.--At organization meetings recently held in Carbon and Natrona Counties, Wyo., five units of sheep-raisers voted assessments to raise funds for employing hunters in cooperation with the Biological Survey. It is stipulated that beginning December 1 each unit shall pay the salary of a hunter for six months, thus relieving State and Federal funds of a rather heavy financial drain.

Increased Assistance in Magpie Control.--Because of requests for assistance in magpie control in stock-raising and turkey-growing sections of Wyoming, a magpie-poison mixing station has been established at Cheyenne. Arrangements have been made to obtain a supply of cheap beef suet and cracklings, and a power grinder and other equipment for properly mixing the bait. It is planned to sell this bait through county extension agents for use where magpie damage warrants control measures.

Albino Pocket Gopher Captured in Arizona.--D. A. Gilchrist, leader of rodent control in Arizona, reports the taking of an albino pocket gopher near Tempe early in November. This pocket gopher was a true albino--wholly white with pink eyes. It was driven from its underground habitat to the surface of the ground by irrigation water. During past years several albino gophers have been taken in Idaho by members of the Biological Survey, and within the past year press dispatches were to the effect that several had been taken in Georgia.

Change of Address.--In the last issue of THE SURVEY Luther J. Goldman's address was given as Post Office Box 615, Pocatello, Idaho. It has now been changed to Post Office Box 59.

Appointments.--Miss Elizabeth Standley has been appointed junior clerk-stenographer, effective November 29, at Billings, Mont., to fill the vacancy in R. E. Bateman's office caused by the transfer of Miss Christie M. Farr to the Post Office Department. John M. Hill, Jr., was appointed junior biologist, effective November 1, and detailed as an assistant to Leader L. C. Whitehead in Texas. Harold O. Crowley was appointed agent, effective November 16, and assigned to duty under Leader L. J. Goldman in Idaho. He will also assist in keeping the accounts in connection with the bait-mixing station at McCammon.

New Type of Rodent Damage.--Late in September the Commissioner of Lighthouses of the Department of Commerce brought to the attention of the Bureau a request for assistance in rodent control made by the keeper of the lighthouse at Farallon Islands, Calif. The keeper stated that after scaling the four-inch air line from the fog signal to the landing and painting with red lead the places scaled, it would be noted that on the following day there was very little left of the paint that had been applied. All places were repainted, and it was the opinion of the keeper that rabbits were eating the dry paint off during the night. There were so many places where this gnawing took place that the keeper was unable to protect them from damage. The matter has been called to the attention of Joseph Keyes, leader of rodent control in California, who will investigate as to whether rabbits or rats were actually doing the damage.

Leaders Called for Conference.--All the leaders of rodent control of the Bureau, except those who were called to Washington last spring, will reach Washington by the morning of December 9 for a week's conference. Similar to the conference of last spring, the program will consist chiefly of discussions on the activities of the Bureau by the various heads of divisions and offices. Most of the time, however, will be taken up with rodent-control problems and other matters affecting the work of this Division.

Wolf Control Appreciated in Oklahoma and Arkansas.--A stock-raiser of McCurtain County, Okla., has informed A. E. Gray, leader of predatory-animal control in Oklahoma, that wolf-control work in that section has been very effective and is greatly appreciated by the stock and farming interests. Previous to the cooperative wolf-control work in McCurtain County, this farmer had lost in one year 54 brood sows, which he valued at \$10 each. Another rancher, of Almond, Ark., writes the Oklahoma City field office as follows:

"I certainly appreciate the work that Hunter S. R. Anderson is doing in this section. He has caught a pair of old wolves that have killed many hundred dollars' worth of livestock in Cleburne, Stone, and Independence Counties during the past year. They have been ranging in these three counties and killing livestock for the past five years; we have tried every way to get them but failed. We are surely pleased with Mr. Anderson's work."

Rat Campaign Successful.--G. C. Oderkirk, of the Eastern Rodent-Control District recently conducted an exceptionally effective campaign against rats at Quincy, Ill. The entire campaign was completed in 8 days, during which time 262 business premises and all city dumps were carefully treated with red-squill baits and visited a second time to check results and to re-treat where necessary. Prepared baits were distributed to 1,000 residences. The cost of the campaign (about \$750) was borne entirely by the Quincy Public Health District. Seventy pounds of red squill and 1,400 pounds of fish and other foods were used, and 8 laborers were employed. The remarkable feature of the campaign was that only 3 out of the 262 business premises treated and revisited after one week reported having seen any signs of live rats.

Wood Rat Interferes with Checking Forest Fire.--According to the "California District News Letter" of the United States Forest Service, another problem in connection with the fighting of forest fires was discovered while backfiring was recently in progress on the Klamath National Forest. A wood rat got too close to the flames and its fur began to burn. The animal is reported to have dashed wildly across the line of backfire for a distance of about 40 feet, and to have plunged into one of its nests, which was built of dry twigs, pine needles, and leaves. The result was another spot fire that required the attention of the fire fighters.

Resigns.--Hugh E. Williams, assistant biologist, stationed at the Control-Methods Research Laboratory at Denver, Colo., resigned on November 6 to take up mining work near San Javier, Sonora, Mexico. Mr. Williams has been connected with the laboratory ever since its establishment and had contributed materially to the high efficiency of its work. At all times he has worked hard for the Survey and was responsible for many innovations that have made the laboratory a worth-while place in which to work and study. The best wishes of Mr. Williams's fellow-workers in this Division are extended to him for success in his new undertaking.

Cooperative Work Growing in South Dakota.--Agreements for cooperative rodent control were entered into with Brown and Sully Counties, S. Dak., during October, making a total of eleven counties in that State with which the Bureau is carrying on cooperative rodent-control operations. In nine of these counties farm rat control is now in progress.

Texas Wolf Captured.--C. R. Landon, leader of predatory-animal control in Texas, has sent in the following account of the work of Hunter Sam Boyd in Terrell County, Tex., as quoted from the Sanderson Times of November 1, 1929:

"An outlaw wolf that has been running at large for the past 3 1/2 years was captured a few nights ago by Trapper Sam Boyd. The capture of this wolf marks the end of the wisest 'varmint' that has roamed the plains of Southwest Texas, and the most destructive lone-outlaw-wolf in Terrell County's history. It has killed an average of about one sheep every night, and the estimated loss on sheep alone is \$4,000. Added to this is \$3,000 trapper hire, making a total of \$7,000. During the past two years six private trappers were hired to match their knowledge and strategy against this cunning animal. All six of these men were capable trappers with years of experience, but the cunning 'outlaw' escaped their snares. Boyd, who is working with the U. S. Biological Survey Predatory-Animal Control, was the seventh trapper to take up the fight against the wolf, and it was just 40 days from the time Mr. Boyd set his first trap until he landed his victim. The wolf was crippled, showing that it has been in traps before. The animal was about 8 or 9 years old."

LAND ACQUISITION

More Than Half a Million Acres Now Examined and Mapped.--By the first of November this Division had completed the detailed examination of lands on 17 proposed bird-refuge units in Minnesota, North Dakota, Kansas, Colorado, Utah, Montana, Nevada, California, and Idaho. The total area examined and mapped amounts to 517,442 acres, the average size of the units being approximately 30,500 acres. The average cost for making the examination of each unit was approximately \$400, and the average cost per acre less than two cents.

Progress of Survey Parties.--Since the first of November H. W. Hicks has been engaged on land work on the Upper Mississippi River Refuge. Chalmer Jackson has been employed on survey work incident to land acquisition and to the administration of the refuge. Carey H. Bennett has been placed in charge of an examination crew and is now completing the examination and appraisal of an extensive unit in the sandhill region of Nebraska. From this place the party will move to western Illinois. R. M. Rutherford's party is engaged in the examination of units in northern New Mexico and northern Oklahoma.

GAME AND BIRD CONSERVATION

Survey's Boat Slightly Damaged.--The Survey's speed boat C-5, which only recently was shipped from Washington, D. C., to U. S. Game Protector L. J. Merovka at Memphis, Tenn., for patrol work on the Mississippi River, was slightly damaged the night of November 10, when a power boat used by Federal prohibition officers was blown up a short distance away. One window of the C-5 was broken by splintered wood, but the boat of the prohibition unit was so badly demolished that only the framework was left.

Immense Flight of Pintails.--Game Protector Frank Clarkson reports that late in the afternoon of October 28 in the vicinity of Bay City, Tex., pintail ducks began passing south in great wedge-shaped flocks, flying high. He states that thousands of birds, all pintails, passed constantly for about two hours.

Visits Importers of Foreign Birds.--Dr. T. S. Palmer, in charge of importation permits, recently returned from a trip to Philadelphia and New York City, where he conferred with the Survey's inspectors stationed at these ports and visited the places of business of the principal importers of canaries and other cage birds. The demand for certain breeds of canaries, he says, has changed radically in the past year. The former demand for "rollers" is giving way to one for "choppers." Doctor Palmer gave attention also to the crates in which wild birds are imported, and to the measurements of boxes used for shipment of parrots from Central and South American ports, with a view to recommendations for standardization. While in New York City he attended sessions of the meeting of the National Association of Audubon Societies, of which he is first vice-president.

Attends Izaak Walton League Meeting.--Ray C. Steele, superintendent of the Upper Mississippi River Wild Life and Fish Refuge, attended the State convention of the Izaak Walton League of America at Eau Claire, Wis., on October 24 and 25, and gave a short talk on the development of the Upper Mississippi Refuge. Mr. Steele reports that the convention was well attended and that a number of constructive conservation programs were proposed.

Big Lake Dam Again Damaged.--The dam at the north end of Big Lake Bird Refuge, Ark., originally constructed in November, 1924, for the purpose of maintaining the water on the reservation at a proper level, was again badly damaged by unknown vandals on the night of October 20. This dam has now been broken four times. Last summer the State of Arkansas cooperated in rebuilding it. Efforts are being made to learn the identity of the persons responsible.

Appointment.--Fred Winkler, an employee of the Reclamation Service at Orman Dam within the Belle Fourche Reclamation Project, S. Dak., has been appointed deputy reservation protector and United States deputy game warden to give protection to the wild life on Belle Fourche Bird Refuge, which is within the reclamation project.

Cranes and Waterfowl at North Platte.--Warden W. R. Jones, of North Platte Bird Refuge, Nebr., reports that a flight of sandhill cranes seen during the first week in October was the largest one of that species witnessed at the refuge in many years. During October, 30,000 to 40,000 wild ducks were on the refuge, but only eight geese were seen.

Deer Seen at Big Lake.--R. T. Wright, assistant to the protector at Big Lake Bird Refuge, Ark., saw two deer near the warden's camp on November 1. Deer are seldom seen on this refuge.

La Crosse Donates Site for Boat Yard.--The city of La Crosse, Wis., recently gave the Upper Mississippi Refuge a 99-year lease to a plot of ground 150 feet by 300 feet for use as a boat yard. The site is near the business section of the city and fronts on a navigable slough, which is at all times sheltered from drifting ice and rough waters of the main river and which affords an excellent harbor for the refuge boats. A railway is now being constructed there so that the larger boats may be removed from the water before winter. Ranger Mueller, who is in immediate charge of the work, was able to procure at a considerable saving steel rails and the necessary trucks from a local concern, which happened to have surplus equipment. It is proposed to construct a boat house and small machine shop on the site next spring.

Two Additional Ranger Cabins Constructed.---Within the past month two additional cabins for Upper Mississippi Refuge rangers have been constructed, one near Trevino, Wis., at the confluence of the Chippewa and Mississippi Rivers, and the other in the Winneshiek area in Crawford County, Wis. These cabins are designed to provide shelter and afford a base of operations for rangers operating in the important districts in which they are located.

Fined for Violating Fur Laws.---A man apprehended in the Mississippi Bottoms in Houston County, Minn., on October 16, by Junior Ranger Hall and Deputy Ranger Frerichs for taking and possessing pelts of muskrats in close season, was arraigned before a justice of the peace at Caledonia, Minn., on the same day, and upon plea of guilty was fined \$10 and costs of \$11.40. The violator had 77 muskrat pelts in his possession. Two other persons were apprehended in the Winneshiek area on October 23 by Ranger Lawrence for possessing muskrats in close season. Arraigned before a justice of the peace, the accused pleaded guilty and were each fined \$50 and costs.

Ranger Lawrence, working in cooperation with Wisconsin Conservation Warden Lange, apprehended a trapper in the Mississippi Bottoms in Crawford County, Wis., on October 12, for having muskrats in his possession during the close season. When arraigned in State court, the man pleaded guilty and was fined \$50 and costs. Reports had been received of the digging out of muskrats where this offense occurred, and rangers are of the opinion that this arrest has had a salutary effect on trappers in that locality.

Junior Ranger Hall apprehended a resident of Houston County, Minn., on October 19 for possessing the pelts of fur-bearing animals in close season. Upon arraignment before a justice of the peace, the accused pleaded guilty and was fined \$20 and costs.

Game Conditions on Upper Mississippi Refuge.---The following excerpt from a report dated October 19 from Ranger Lundberg is quoted as being typical of conditions on the Upper Mississippi Refuge since protection and development work were instituted:

"Berni and I on Wednesday covered very thoroughly as much of the ground in the closed areas as possible to get an accurate estimate of the ducks. There is probably as great a concentration of birds right now in the local areas as we shall have any time this fall; and I never before saw such big greenheads and black mallards. The majority of the ducks are mallards. Some of the small lakes, which are not over a hundred feet across, had 400 or 500 birds in them, mostly mallards but a few pintails. The big lake had about 2,000. We did not cover the entire area, as this would have required about 4 days, but I should judge that there are at least 6,000 birds on the area at the present time. There are not many coots, as they are mostly all at the foot of the lake---about 2,000 or 3,000 the other day. I have also seen quite a number of ruffed grouse in the bottoms this fall, and there is an abundance of fur animals. In many places the muskrats have mowed off all the duck potatoes, so feeding conditions are not so favorable as they would be with a little more water; however, the ducks all seem to be in good condition this fall. I saw 14 mallards perched on one muskrat house in one little puddle."

Violator Pays Heavy Fine.---A game-law violator arraigned in Federal court at St. Louis, Mo., on October 22, 1929, charged with killing wild ducks from a motor boat was tried before a jury, which returned a verdict of guilty. The court imposed a fine of \$250 and costs. The evidence was furnished by United States Game Protector Barmeier and Deputy Game Warden Ferrier.

Fined for Hunting on Refuge Closed Area.—Two persons arraigned in Federal court at La Crosse, Wis., on October 2, 1929, charged with violating the Upper Mississippi River Wild Life and Fish Refuge act by hunting wild ducks on a closed area, were fined \$25 each. These cases were reported by Conservation Warden Lange and Reservation Protector Lawrence.

First Automobile Cases Submitted.—The first cases involving hunting of migratory birds from automobiles contrary to the Federal regulations were submitted during the month, one from Missouri by Deputy Warden Creech and one from Texas by Protector Clarkson.

Treaty-Act Cases Terminated—Reports Received during October

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Barmeier, Adams*	1	Missouri	Hunting and possessing a wood duck	\$15
Barmeier, Creech*	1	"	Killing a wood duck	\$15
Barmeier, Creech*, Bell**	1	"	Killing ducks from a motor boat	\$10
" "	1	"	Killing ducks from a motor boat	\$25
Barmeier, Creech*, Heller*	1	"	Hunting and killing ducks from a motor boat	\$100
Barmeier, Ferrier*, Heller*	1	"	Hunting and killing ducks from a motor boat	\$250 and costs
Barmeier, Heller*	1	"	Hunting ducks in close season	\$5
Carlton, Hanes*	1	Ohio	Killing and possessing a heron	\$10 and costs of \$21.20
Charlton, Lewis*	1	Michigan	Possessing ducks in close season	\$100
" "	3	"	Possessing ducks in close season	\$50 each
Charlton, Murphy***	1	"	Selling ducks	\$100
Clarkson	2	Texas	Killing and possessing mourning doves in close season	\$10 each
"	1	"	Killing and possessing mourning doves in close season	\$5
Harris*, Jameson**	4	Arkansas	Hunting ducks after sunset	\$5 each
" "	1	"	Hunting ducks after sunset	\$10
Merovka, Adams*	1	Missouri	Killing and possessing ducks in close season	\$25
" "	1	"	Killing and possessing a mourning dove in close season	\$75
" "	1	"	Hunting geese in close season	\$25
" "	1	"	Hunting ducks in close season	\$25
" "	1	"	Hunting and killing ducks in close season	\$30
" "	1	"	Hunting and killing ducks in close season	\$20

*U. S. Deputy Game Warden.

**Deputy State Game Warden.

***Cooperator.

Treaty Act Cases Terminated--Reports Received During October--Continued

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Merovka, Adams*	2	Missouri	Killing and possessing a duck in close season	\$100 each
" "	1	"	Hunting geese in close season	\$50
" "	1	"	Killing and possessing a duck in close season	\$50
Ransom	1	Washington	Killing ducks in close season	\$20
Riddick	1	Arkansas	Offering for sale and selling ducks	\$5
Riddick, Thomason**	1	"	Possessing ducks in close season	\$10
Roahen	1	Illinois	Hunting and possessing ducks in close season of \$35	\$15 and costs
"	2	"	Killing coots in close season of \$35 each	\$15 and costs
"	1	"	Killing coots in close season of \$35	\$20 and costs
Roahen, Byam**	4	"	Hunting ducks in close season of \$35 each	\$15 and costs
" "	2	"	Hunting and possessing ducks in close season of 35 each	\$15 and costs
Shaver, Rogalla*, Moore**	2	Minnesota	Hunting ducks after sunset	\$10 each
Steele, Kelly**, Ruark**	1	Maryland	Hunting and killing ducks in close season of \$45.03	\$100 and costs
Steele, Ruark**	2	"	Hunting ducks after sunset	\$25 and costs of \$65.10 each.

*U. S. Deputy Game Warden.

**Deputy State Game Warden.

Treaty-Act Cases Reported for Prosecution

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Clarkson	4	Texas	Killing and possessing mourning doves in close season
Crawford*	1	Oklahoma	Hunting ducks in close season and from a motor boat
Creech*	1	Missouri	Killing a mourning dove from an automobile
Giesler*	1	Illinois	Hunting and possessing a bittern, a flicker, and robins
"	1	"	Possessing robins, catbirds, and a meadowlark
"	2	"	Hunting and possessing a grebe
Harris, Jr.*	2	"	Hunting and possessing wood ducks
Jans*	1	"	Possessing a killdeer
"	1	"	Hunting and possessing a meadowlark
"	3	"	Possessing catbirds, a robin, a flicker, and a thrush
"	1	"	Attempting to kill flickers
"	2	"	Hunting waterfowl in close season
"	1	"	Killing and possessing a flicker
Fertuit*, Berthelot**	2	Louisiana	Killing a duck in close season
Fertuit*, Durand**	3	"	Hunting wood ducks
" "	1	"	Killing a wood duck and a night heron
Fertuit*, D. Martin**, F. T. Martin**	3	"	Hunting wood ducks
Ransom	4	Idaho	Possessing wood ducks
Ransom, McGee*, Deeter**	1	Washington	Hunting and killing ducks in close season
Ransom, Worchester**	1	Idaho	Possessing a wood duck and a grebe
Roahen	1	Illinois	Possessing golden plovers
"	1	"	Possessing a wood duck
"	1	"	Shooting at coots from a motor boat
"	2	"	Hunting and possessing wood ducks
Scholler*, Jans*	1	"	Hunting and possessing meadowlarks
" "	1	"	Hunting coots in close season
" "	1	"	Killing coots in close season
Scholler*, Petersen*	1	"	Killing a coot from a motor boat
Whitehead	1	Georgia	Possessing jacksnipe in close season
"	2	South Carolina	Killing ducks in close season

* U. S. Deputy Game Warden.

** Deputy State Game Warden.

THE SURVEY

ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE

CREDIT FOR MATTER REPRINTED FROM THESE PAGES SHOULD BE GIVEN TO THE BIOLOGICAL

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U. S. Department of Agriculture

Vol. 10

Washington, D. C., December 26, 1929

No. 12

TO ALL MEMBERS OF THE BIOLOGICAL SURVEY:

The year just closing has been a busy and fruitful one for all of us. Members of the Washington office, through extensive trips, have been enabled to make more intimate contacts with the field men, and I am convinced that there has been brought to the activities for which we are responsible much better coordination. As we leave an old year and its records behind us and enter upon another new one, I want to register my own appreciation of your continued cooperation, loyalty, and industry. Only as this has been given in unstinted measure have we been able to keep up with the ever increasing volume of our work and perform to our mutual satisfaction the tasks that have fallen to our lot. Everywhere public interest in our activities is growing. Nineteen-thirty will see several new projects started. Instead of letting-up in our attention to our responsibilities, or assuming a complacent attitude toward them, we must all, with renewed determination, press forward to their fulfillment.

I extend to all members of the Survey sincere holiday greetings, with the hope that you have enjoyed to the full the Christmas-tide and that success and happiness will attend you in 1930.

Paul G. Redington

GENERAL NOTES

Appropriation Bill for 1931 Reported.--The House of Representatives Committee on Appropriations on December 13 reported the bill making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1931. The bill (H. R. 7491) carries for the Biological Survey a total of \$1,776,320, which would be an increase over the current year of \$267,154. The items are as follows (the figures in parentheses being corresponding appropriations for the fiscal year 1930): Administration, \$77,520 (\$73,280); maintenance of mammal and bird reservations, \$80,000 (\$75,000); food habits of birds and animals, \$680,000 (\$633,273); production of fur-bearing animals, \$57,000 (\$51,200); biological investigations, \$66,800 (\$56,800); protection of migratory birds, \$192,000 (\$173,013); animal breeding and protection in Alaska, \$127,000 (\$101,000); Upper Mississippi River Refuge, \$197,000 (\$190,600); Bear River Migratory Bird Refuge, \$94,000 (\$75,000); migratory bird conservation act, \$205,000 (\$80,000). The appropriation to the Department for printing and binding would be \$942,000, an increase of \$100,000 over last year.

Chief Gives Lecture.--Mr. Redington, on Sunday evening, December 1, gave a lecture on "The Inspirational Value of Wild Animals and Birds" in a season's series of lectures being given at the Gwynn Oak Meeting House, Baltimore, Md.

The Sixteenth American Game Conference. held under the auspices of the American Game Protective Association in New York City on December 2 and 3, was attended by the following members of the Biological Survey: Mr. Redington, Mr. Henderson, H. P. Sheldon, Dr. W. B. Bell, Frank G. Ashbrook, Stanley P. Young, Talbott Denmead, W. R. Dillon, Dr. A. K. Fisher, and Herbert L. Stoddard, from the Washington office, and David H. Madsen, superintendent of the Bear River Migratory Bird Refuge, and H. W. Terhune, executive officer of the Alaska Game Commission. Mr. Redington addressed the conference on the subject "A Review of Wild-Life Conservation Progress" and Mr. Ashbrook on "Progress in Fur Farming," and a paper prepared by F. C. Lincoln on "Banding the Blue Goose on Its Wintering Grounds" was read. The program of the conference covered a wide range of subjects, most of the first day's sessions being devoted to discussions on game breeding and on research and surveys, and the second day's to more general phases of conservation activities. In conjunction with the conference were held meetings of the American Gamekeepers' Society, the Outdoor Writers' Association of America, and the National Committee on Wild-Life Legislation.

Official Publications.--The following official publications of the Bureau were issued during the month:

- "Revision of the American Chipmunks (Genera *Tamias* and *Eutamias*)," by Arthur H. Howell. North American Fauna No. 52, 157 p., illus. Received November 30.
- "Life History and Habits of Grasshopper Mice, Genus *Onychomys*," by Vernon Bailey and Charles C. Sperry. Technical Bulletin 145-T, 20 p., illus. Received December 10.
- "Manual for Bird Banders," by Frederick C. Lincoln and S. Prentiss Baldwin. Miscellaneous Publication 58-M, 112 p., illus. Received December 13.

"Game Birds Suitable for Naturalizing in the United States," by W. L. McAtee. Circular 96-C, 24 p., illus. Received December 13.

"Red-squill Powders as Raticides," by Dr. J. C. Munch, James Silver, and E. E. Horn. Technical Bulletin 134-T, 36 p., illus. Received December 17.

Radio Talks for January.--The following Biological Survey talk for the month of January is scheduled in the Department's radio program:

Game-Bird Propagation (Primer for Town Farmers series) January 8.

BIOLOGICAL INVESTIGATIONS

Visits Kentucky Caves.--Vernon Bailey returned to Washington on November 18 from a visit to Mammoth Cave and other caves in central Kentucky, where he devoted a few days to study of the winter life of the caves, mainly of the bats that hibernate there in great numbers. Just where these useful mammals spend the winter, the determination of the species that occupy the different caves, and the reasons for their choice constitute part of the studies being carried on. Six species of live bats were brought back to Washington for further study during the winter hibernation period, and are being kept in cold storage as nearly as possible at the cave temperatures.

Attends Banding Meeting.--F. C. Lincoln attended the eighth annual meeting of the Inland Bird Banding Association at St. Louis, Mo., November 7-10. He reports that the trend of the meeting was to stress the opportunities of bird banders to make studies of broad significance. Mr. Lincoln had opportunity to become personally acquainted with many co-operators of the Survey formerly known to him only through correspondence. After the close of the meeting Mr. Lincoln went to the Rainey Wild-Life Refuge in Louisiana to do banding work among the geese and ducks. Conditions for banding were very unfavorable, but about 700 lesser scaup ducks were trapped and banded. He returned to Washington on December 11.

Inspects Mountain Areas in Arizona.--Early in November Dr. W. P. Taylor, in cooperation with officials of the Forest Service and the University of Arizona, spent a few days inspecting areas in various mountain ranges in southern Arizona, to study certain features of wild life conditions there. During the latter part of the month he spent some time inspecting experimental plots, and working on the life history of jack rabbits.

Domestication of Wild Sheep Undertaken.--L. J. Palmer reports that experiments in the domestication of mountain sheep have been undertaken at the Reindeer Experiment Station, near Fairbanks, Alaska, in cooperation with the Alaska Agricultural College. The possibility of crossing the wild sheep with domestic animals is being considered, but it is believed that the best results will come from the use of the wild strain alone.

In Washington for Elk Conference.--O. J. Murie is spending a few weeks at the Washington office, having been called in to attend a meeting of the Elk Commission held on December 4 and 5 at the Cosmos Club. This visit enables him to effect progress in certain studies that he is carrying on in connection with his work on the elk. On the evening of December 14, Mr. Murie addressed the Biological Society of Washington on "Elk Studies in the Jackson Hole Region," his talk being illustrated with slides and motion pictures taken by himself.

Makes Trip to Nunivak Island.--W. B. Miller was occupied during the early part of September in studying corralling and slaughtering methods employed by reindeer herders in the vicinity of St. Michael, Alaska. He spent the latter part of the month and most of October on a trip to Nunivak Island. Here he studied in detail results of crossbreeding reindeer and caribou and carrying on grazing investigations. Travel on Nunivak Island was largely afoot and by native kayak.

FOOD HABITS RESEARCH

Reports of Surveys Being Completed.--F. M. Uhler, the last of the employees to return to Washington from field work, is now engaged in completing reports on areas surveyed for Federal migratory-bird refuge sites in the northern half of the Mississippi Valley. Charles C. Sperry, who was working the western States, returned somewhat earlier and has turned in reports on all the areas surveyed in that region.

Refuge-Site Recommendations Summarized.--The three field parties engaged in determining the food resources and other details regarding the biological fitness of proposed migratory-bird refuge sites, from June to the conclusion of the field season, surveyed 154 areas, totaling more than 1,500,000 acres. The number refers to separate projects and not to bodies of water, which are much more numerous. The following tabulation summarizes the recommendations that have been made relating to the areas examined:

	Eastern States	Middle States	Western States
Areas most highly recommended.....	4	5	18
Areas less highly recommended.....	10	22	7
Areas not recommended.....	<u>25</u>	<u>36</u>	<u>27</u>
Totals.....	39	63	52

Upland Game Bird Studies Expanding.--Herbert L. Stoddard has recently made inspections of field trial grounds in Oklahoma and Mississippi to learn whether any of them are suitable for carrying on a demonstration of methods of increasing the quail population, possibly under a fellowship arrangement such as is being carried on at some of the mid-western universities. He also revisited the scene of the cooperative quail investigation in southern Georgia and northern Florida to keep in touch with developments there. In connection with his attendance at the American Game Conference in New York City, Mr. Stoddard conferred with members of the committee arranging for an investigation of the ruffed grouse in New York State, and, in cooperation with Dr. A. A. Allen, of Cornell University, formulated a tentative program for the investigation.

FUR RESOURCES

Visits Fur-Animal Experiment Station.--Mr. Ashbrook spent several days at the Fur-Animal Experiment Station at Saratoga Springs, N. Y., during the latter part of November, inspecting the work and conferring with Dr. K. B. Hanson, director. The surplus foxes, 17 in number, have been pelted and the skins sent in to be photographed before they are sold at auction.

Survey Made of Muskrat Marsh Areas.--Dr. J. E. Shillinger spent two weeks during the month making a study of the muskrat producing areas in New Jersey, Delaware, and Maryland. This survey embraced the natural marsh areas where these animals thrive, and a large number of places where attempts are being made to raise muskrats under various forms of controlled conditions were investigated. A wide range of conditions prevail on these muskrat farms in this limited section of the country. Several of the farmers offered the use of their farms and equipment to the Bureau for making a study of these animals.

Rabbit Breeders in Convention.--John W. Meyer, director of the Rabbit Experiment Station, at Fontana, Calif., attended the Rabbit Show at Colorado Springs, Colo., December 3 to 6, and staged an exhibit on the rabbit industry, which was well received. It was shown again at Fort Worth, Tex., December 9 to 11, during the annual convention of the American Rabbit and Cavy Breeders Association, which Mr. Ashbrook also attended. Before returning to Washington, Mr. Ashbrook made a survey of muskrat marshes in Texas and Louisiana, in cooperation with State officials.

Appointment.--Miss Jane E. Kehoe, of Schenectady, N. Y., was appointed junior stenographer, effective December 15, at the U. S. Fur-Animal Experiment Station, at Saratoga Springs, N. Y.

PREDATORY-ANIMAL AND RODENT CONTROL

Rodent-Control Leaders Meet in Washington.--As recommended at the Ogden Conference in 1928, it is planned to have all district leaders visit the Washington office in three groups within a year. The first group, consisting of the dual leaders, met in Washington last May. The second group, consisting of the leaders in rodent control work, met in conference at Washington for a week beginning December 9. A program was arranged to give these leaders an intimate knowledge of the workings of the Bureau as a whole, and included addresses by Mr. Redington, Mr. Henderson, and the heads of divisions and offices, as well as by some of the field leaders. Much time also was taken up in discussing matters relating to the operations of the Division. It is planned that the third group, consisting of leaders in predatory-animal control, will come to Washington for a conference some time next spring.

City of Tacoma, Wash., Cooperating with Bureau.--An anti-rat campaign at Tacoma, Wash. inaugurated by Leo K. Couch, leader of rodent control in the Washington district, and conducted in cooperation with the city council, has resulted in exceptionally good work in eliminating rats in certain areas of the city. For the fiscal year 1930 the city has provided \$3,710 to continue the work. In addition, other cooperators in the city will probably spend \$2,200 for the same purpose.

New Predatory-Animal Control District in Mid-West.--Effective December 1, operations in the control of predatory animals were undertaken by the Bureau in Wisconsin and Minnesota, in cooperation with the Wisconsin State Conservation Commission and the Minnesota State Commissioner of Game and Fish. Each State has provided \$15,000 for the present fiscal year. Otto L. Coleman has been detailed as leader for the district, being transferred from the Texas district, where for several years he has been assistant to C. R. Landon. Mr. Coleman will maintain headquarters in the offices of the State Conservation Commission at Madison, Wis.

Appointment.--Ernest J. Greenwalt was appointed agent, effective December 2, to assist E. R. Sans in rodent-control work in the Nevada district. Mr. Greenwalt has been employed by the Audubon Society as overseer on the Sheldon Antelope Reserve in Nevada.

A Suggestion in Predatory-Animal Control.--A letter recently received from a dentist offers a suggestion in predatory-animal control, which he seems to think has remarkable possibilities:

"Possibly the suggestion I am writing to make to you, you have already had in mind before. It came to mind while I was reading a magazine article recently. In the article was described the difficulty which government and stockmen were having in controlling the ravages of wolves. It occurred to me that if the animals usually killed by ham-stringing were protected over the tendons of the hind legs, or other vital parts where necessary, the loss would be considerably reduced. The protection could take the form of a light, non-corrosive chain mesh clipped about the tendinous part of the limbs. Such metal mesh could be used over again being nearly indestructible. Large animals such as reindeer and cattle would at least be worth while the trouble protecting so. Possibly, too, the larger animals, males especially, would be encouraged to fight the wolves. The idea has occurred to me, also, of training the more aggressive males, from calfhood, to attack wolves on sight. This would extend much protection to weaker members of the herds."

Rats and Foot-and-Mouth Disease.--An editorial in the Pennsylvania Farmer for September 28 says: "The rat, despised of animals, is accused of another crime. Speaking before the National Veterinary Medical Association of Great Britain recently, J. O. Powley, inspector for the Ministry of Agriculture, reported observing large numbers of lame rats in a piggery infected by foot-and-mouth disease. Examination disclosed the fact that the lame rats had lesions on their feet similar to those caused by foot-and-mouth disease on farm animals. The matter is being further investigated. If Mr. Powley's suspicions are verified it will solve one of the most baffling mysteries connected with this disease--that is, the occurrence of outbreaks without any traceable connection with other infestations, and it will further blemish the dark reputation of a most heartily disliked rodent."

Great Saving on Carload of Grain.--Of considerable interest is the announcement made by the Arizona district that a considerable saving was effected by purchasing a carload of steam-crushed oats from the Idaho plant of the Survey to be shipped to Williams, Ariz. The product will be delivered at Williams for \$312 less than it could be purchased at and delivered from Phoenix, Ariz., as has been the practice in the past.

Congratulations are extended to Mr. and Mrs. Elmer Heward, who were married on November 17. Mrs. Heward was formerly Miss Edna Thomas, clerk in the Reno, Nev., office.

Change of address.--A. E. Gray, leader of predatory-animal control in the Oklahoma-Arkansas district, has recently moved into new office quarters. Mr. Gray's new address is 514 Equity Building, Oklahoma City, Okla.

Death of L. C. Whitehead's Mother.--While present at the conference of rodent-control leaders in Washington, L. C. Whitehead, leader of rodent control in Texas, received word of the death of his Mother, who was killed in an automobile accident in California. On his return trip Mr. Whitehead attended the funeral, which was held at Indianapolis, Ind.

LAND ACQUISITION

Progress of Appraisal Parties.--Carey H. Bennett and party are now completing the examination and appraisal of a proposed migratory-bird refuge in western Illinois. From there the party will move to northwestern Louisiana. Robert M. Rutherford and party have completed the examination and appraisal of several units in northern New Mexico and in Oklahoma, and are at present working in Arkansas. This party upon completing the work in Arkansas will shortly proceed to eastern North Carolina.

New Bird Refuge in Montana.--Under Executive order of November 21, 1929, President Hoover has set aside as a refuge and breeding ground for birds a tract at Benton Lake, Montana, containing 12,234 acres, in Cascade and Chouteau Counties, near the city of Great Falls. The new reservation will be known as the Benton Lake Bird Refuge. The examination and appraisal of this unit were made by H. W. Hicks and party during the month of August, and as it developed that the greater part of the lands suitable for refuge purposes were in public ownership under temporary withdrawal by the Bureau of Reclamation, steps were taken to have this area set aside under Executive order. Its size may be further increased by later purchases under the Migratory Bird Conservation Act. Surveys of the food resources of the area were made last summer by C. C. Sperry and party, of the Division of Food Habits Research. The new refuge will constitute an important sanctuary for great numbers of migratory waterfowl. More than 3,000 acres of the refuge is water area, with an abundance of aquatic plant growth for cover and food for wild fowl. Several species of wild ducks, as well as wild geese, are found on the Lake Benton marshes during their migrations, and some of these birds breed there. Shorebirds also frequent the region chiefly in migration. The area was formerly a part of the Sun River Reclamation Project.

First Lands Bought for Bear River Refuge.--Payment has recently been made and title passed to the Government for 3,777 acres of land within the Bear River Migratory Bird Refuge. These are the first lands acquired by purchase under the Bear River Migratory Bird Refuge Act.

GAME AND BIRD CONSERVATION

Congratulations are extended Mr. and Mrs. Frank Clarkson, of Houston, Tex., on the birth of a son on November 16. Mr. Clarkson is a United States Game Protector.

Advisory Board Meets.--The annual meeting of the Advisory Board, Migratory Bird Treaty Act, was held at the Cosmos Club, Washington, D. C., on December 5, with 14 members in attendance.

Sees Many Herons.--Game Protector J. V. Kelsey reports that on November 30 he saw a beautiful gathering of plume birds between Fort Pierce and Canal Point, Fla. He counted 157 American egrets and 68 snowy herons and states there were many more but that it was impossible to count them accurately. They were mated at that time and apparently would soon be in their rookeries.

Recovers from Infection.--Game Protector B. J. Shaver, of St. Paul, Minn., was ill for about two weeks during the latter part of November with an infection in his right foot caused by a blister, produced while he was patrolling. We are glad to state that he had recovered sufficiently to assume his official duties on December 1.

Illnesses Reported.--We regret to learn of the illness of the wife of Game Protector Harry Barmeier, of St. Louis, Mo. Mrs. Barmeier is in the hospital, a victim of tularemia evidently contracted while cutting up and washing some rabbits for a meal. The young daughter of Protector Frank H. Rose, of the Bison Range, Mont., has been seriously ill with a bone infection so that it was necessary to take her to Seattle, Wash., for treatment. The members of the Survey sincerely trust that both may soon recover.

Inspect Winter Range of Elk.--On November 23, Almer P. Nelson, protector of the Elk Refuge, Wyoming, and O. J. Murie, biologist, made a trip to the Gros Ventre River in the Jackson Hole country to observe forage growth on the winter range of the elk.

Motion Pictures Taken at Lake Malheur.--On November 4 representatives of a newsreel firm and a motor association took motion pictures of birds and other features at Lake Malheur Bird Refuge and also of Malheur Cave in that vicinity.

Visitors to the Washington Office.--Hugh W. Terhune, executive officer of the Alaska Game Commission, with headquarters at Juneau, Alaska, has been at the Washington Office since late in November conferring with members of the Bureau regarding various matters relating to work in the Territory, and brought with him the Commission's recommendations for proposed changes in the Alaska game-law regulations.

R. W. Williams, deputy game conservation officer, stationed at Tallahassee, Fla., was in the Washington office during the latter part of November and several days in December, conferring with Bureau officials.

Ray C. Steele, superintendent of the Upper Mississippi River Wild Life and Fish Refuge, Winona, Minn., spent part of the month in the Washington office taking up with the Bureau matters connected with the administration of the refuge.

D. H. Madsen, superintendent of the Bear River Migratory Bird Refuge, Salt Lake City, Utah, visited the Washington office early in the month to confer on official matters.

Almer P. Nelson, protector of the Elk Refuge, Jackson, Wyo., was brought to the Washington office for conferences and while here attended the meetings of the Elk Commission held in Washington on December 4 and 5. He was accompanied by Mrs. Nelson and their small daughter Alma Ruth. While in Washington Mr. Nelson assisted in the preparation of material that will probably be needed later in connection with the program of development of the Elk Refuge.

Ducks at Niobrara.--Protector Fred M. Dille, of Niobrara Reservation, Nebr., reports that on November 4 about 3,000 ducks were crowded into a small water area within the reservation--so small, in fact, that there seemed scarcely room for another bird.

Dispose of Surplus Big-Game Animals.--On November 8, a young female buffalo was shipped from Wind Cave Game Preserve, S. Dak., to the Park and Tree Commission, of Greenville, S. C. Three others were shipped from the preserve to the city zoo at Evansville,

Ind., and three to a purchaser in the same city. On November 25, a young male buffalo was shipped from Sullys Hill Game Preserve, N. Dak., to the Arizona State Game and Fish Commission at Flagstaff. E. A. Goldman, of the Division of Biological Investigations, was at the National Bison Range, Montana, from October 31 to November 9, assisting Protector Frank H. Rose in selecting and separating from the herd 100 buffalo intended for disposal to a local dealer. Eighteen mule deer were shipped from the Bison Range in November to various points for propagating purposes.

Food Scarce for Birds at Conconully.--Warden C. M. Conger, of Conconully Bird Refuge, Wash., reports that food and water are scarce there and that few mallards are staying in the region. Few native and upland game birds are present, and indications are that the winter will be a hard one for the birds. Mr. Conger indicates that the birds will probably have to be fed by the local people, as they were last year.

Birds Plentiful at Dungeness Spit.--Warden Wm. E. Hubbard states that thousands of ducks, of many species, in good condition, are at Dungeness Spit Bird Refuge, Wash., and that he has noticed also large flocks of brant. One flock of sandhill or little brown cranes and a considerable number of sandpipers and plover are on the reservation. Some geese have been seen flying over the refuge, but only one flock was seen to alight. The warden is having much trouble with violators this season.

Predatory Animals Hunted at Sullys Hill.--Predatory-Animal Hunter T. J. Turner has been busy for several weeks at Sullys Hill Game Preserve, N. Dak., putting out poison and setting traps for coyotes. By the end of November it was believed that all the coyotes had been destroyed for some distance around the preserve, as no tracks could be seen and no coyotes were heard.

Birds at Bear River.--D. H. Madsen, superintendent of the Bear River Migratory Bird Refuge, Utah, reported under date of October 27 that there was an unusual number of birds present on all flooded areas and thousands of them were coming into new lakes created by a temporary dam in the river.

Marine Railway Completed.--A 300-foot marine railway constructed on Isle la Plume, at La Crosse, Wis., for the accommodation of cruisers and patrol boats of the Upper Mississippi River Refuge was completed about the middle of November, and all the boats were pulled out of the water before the freeze-up occurred. On account of a sudden spell of extremely cold weather during the latter part of November, the river and sloughs were frozen over earlier this year than for many years past.

Five Muskrat Cases Terminated in State Court.--During the past month rangers have obtained and successfully prosecuted in State court the following five cases involving the illegal trapping of muskrats on the Upper Mississippi Refuge: In the Winneshiek area, a resident of Crawford County, Wis., was apprehended on October 28 by Ranger Lawrence, Junior Ranger Hall, and Deputy Ranger Frerichs, and upon a plea of guilty was sentenced to pay a fine of \$50, plus costs of \$3.50. In the refuge area in Buffalo County, Wis., two residents of that county were apprehended on November 19 by Ranger Lundberg and Deputy Ranger Berni, and upon arraignment were sentenced to pay fines of \$50 each or serve 30 days in jail. Upon default of payment of the fines both defendants are serving sentences in the Buffalo County jail. In the Winneshiek area, Crawford County, Wis., on November 15 two residents of La Crosse, Wis., were apprehended by Ranger Lawrence and upon arraignment were sentenced to pay fines of \$50 each, plus costs of \$2.20.

Concentration of Wild Ducks Near Wabasha, Minn.--Deputy Ranger Ed. O'Riley, Jr., of The Upper Mississippi River Refuge, reports that for about two weeks early in November there was a concentration of wild ducks on Lake Pepin that he carefully estimated as numbering about 500,000 birds. On the morning of November 13, Mr. O'Riley observed a flight three miles below the lake that lasted from about eight o'clock in the morning until one o'clock in the afternoon. He reports that the whole sky was literally darkened with migrating birds, mostly bluebills. About half the ducks were flying low while the remainder were flying high, which indicated, in his opinion, that another migration had come down from the north, and after resting on Lake Pepin during the night, were joined by the ducks that had been on the lake. On the basis of this, Mr. O'Riley estimated that there must have been at least a million birds migrating on that day over Wabasha, and old residents stated that it was the greatest migration of waterfowl they had ever seen in that locality. Mr. O'Riley also reports that there were more wild geese migrating through the upper portion of the refuge this year than he has noticed in many years.

Returns to Office after Illness.--Dr. T. S. Palmer returned to the office on December 14 after an illness of approximately four weeks.

Importation Inspector Appointed.--Lee S. Crandall, of the New York Zoological Park, was appointed inspector of foreign birds and mammals at the port of New York, N. Y., effective December 1, to fill the vacancy caused by the death of W. DeW. Miller. Mr. Crandall has been connected with the New York Zoological Park for approximately 24 years and has held the position of curator of birds since 1919.

Importations during the month were unusually heavy, more than 92,000 birds, or an average of more than 3,000 a day, being brought in since November 15. The bulk of these were canaries for the Christmas trade, and some 1,650 Hungarian partridges. A shipment of grouse from Kajana, Finland, containing 30 birds, for propagation in the Custer State Park, S. Dak., reached New York on December 3, but only 12 reached their destination alive.

Treaty-Act Cases Terminated--Reports received during November

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>	<u>Fine</u>
Linebaugh	2	Tennessee	Hunting mourning doves after sunset	\$10 each
Perry	3	Missouri	Killing ducks from a motor boat	\$25 each
"	1	Kansas	Possessing ducks in storage in close season	\$5
Perry, Concannon*, Smith**	4	"	Possessing ducks in storage in close season	\$5 each
Perry, Huhn**, Ott**, Piper**	2	Missouri	Possessing ducks in storage in close season	\$10 each
Whitehead	2	Georgia	Killing and possessing robins	\$5 each
"	1	"	Possessing ducks and geese in storage in close season	\$10
Whitehead, Martin**	1	"	Killing and possessing night herons	30 days suspended jail sentence and placed on probation for 2 years

Treaty-Act Cases Reported during November

<u>Protector</u>	<u>Cases</u>	<u>State</u>	<u>Violation</u>
Clarkson	1	Texas	Killing bitterns and hunting from an automobile
Fidler*	1	Illinois	Killing and possessing wood ducks
Gieseler*	1	"	Killing a duck in close season
Harris, Jr.*	2	"	Hunting and possessing wood ducks
Jans*	4	"	Possessing wood ducks
"	1	"	Killing coots in close season
"	1	"	Killing and possessing a flicker
"	1	"	Possessing parts of insectivorous birds
"	1	"	Killing and possessing robins and woodpeckers
"	1	"	Killing and possessing a flicker and thrush
"	4	"	Killing ducks in close season
"	1	"	Hunting coots in close season
"	5	"	Killing insectivorous birds
"	1	"	Killing and possessing a grebe
Linebaugh	2	Tennessee	Hunting doves after sunset
Perry	3	Missouri	Killing ducks from a motor boat
Riddick	1	Arkansas	Killing and possessing a wood duck
Roehen, Hahn*	3	Illinois	Hunting ducks in close season
Scholler*, Jans*	1	"	Killing a cedar waxwing
" "	1	"	Killing a thrush
" "	1	"	Killing and possessing a bittern
" "	1	"	Hunting meadowlarks
" "	1	"	Killing coots in close season
Scholler*, Petersen*	2	"	Hunting coots in close season
" "	2	"	Killing coots from a motor boat
Shaver	1	Minnesota	Possessing ducks in storage in close season
Whitehead	1	Georgia	Hunting doves in close season
Whitehead, Adams**, Austin**	5	"	Killing doves in close season

* U. S. Deputy Game Warden

** Deputy State Game Warden



